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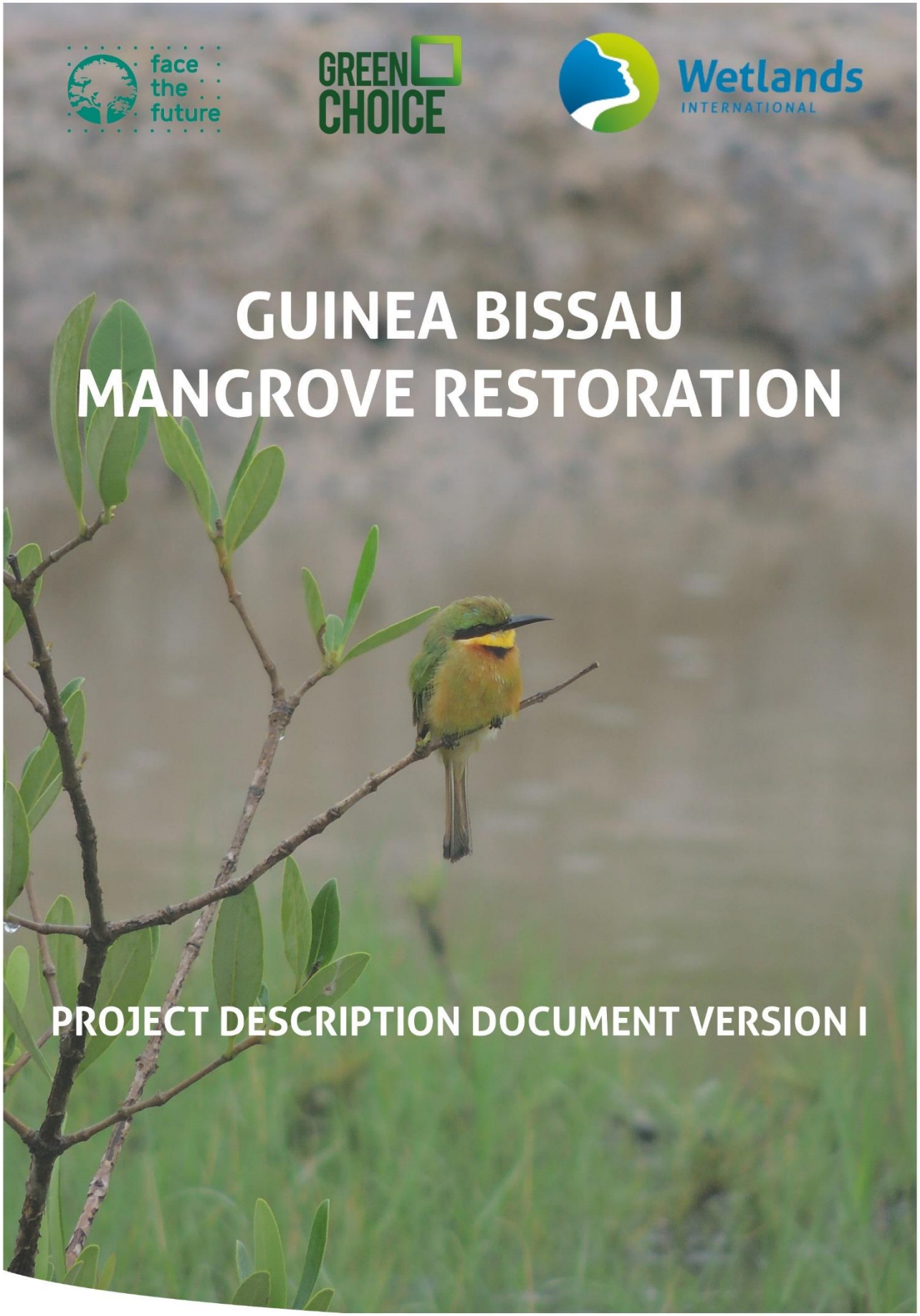
GREEN CHOICE

Wetlands INTERNATIONAL

GUINEA BISSAU MANGROVE RESTORATION



PROJECT DESCRIPTION DOCUMENT VERSION I

GUINEA-BISSAU MANGROVE RESTORATION

Project Description Document Version: 1 – December 2021

LIST OF ABBREVIATIONS

AFOLU	Agriculture, Forestry, and other Land Use
ARR	Afforestation, Reforestation, and Revegetation
CBEMR	Community Based Ecological Mangrove Restoration
GHG	Greenhouse gasses
IBAP	Instituto Brasileiro de Avaliação Psicológica / Institute of Biodiversity of the Protected Areas
IOPs	The Ramsar Convention's International Organisation Partners
LQAP	Law of the Protected Areas
NGO	Non-governmental organization
PNC	Parque Nacional de Cantanhez (or Cantanhez National Park)
PNMC	National Park of the Cacheu River Mangroves
PNTC	Parque Natural dos Tarres de Cacheu (or Cacheu National Park)
RCP	Representative Concentration Pathway
RGPH	Recensement Général de la Population et de l'Habitat
RSLR	Relative sea level rise
SAR	Surface Accretion Rates
SSC	Sub-Surface Change
TPNTP	To Plant or Not To Plant
VCS	Verified Carbon Standard
WIACO	Wetlands International Africa
WRC	Wetlands, Restoration, and Conservation

1 PROJECT DETAILS

1.1 Summary Description of the Project

Summary description of technologies/measures to be implemented by the project

The proposed project falls under the ARR (Afforestation, Reforestation, and Revegetation) category of the Verified Carbon Standard (VCS). The project will in general comply to the standards of VCS and Climate, Community & Biodiversity (CCB), but will however not be officially certified. Where relevant the rules and requirements of VCS and CCB have been simplified to bring it in line with the scope of the project. The VCS and CCB Project Description templates were used as guidance for writing up this project document.

The overall objective of this project is that the 'mangrove community' adopts and scales-up best practice in mangrove restoration, rehabilitating of at least 2,500 ha of mangroves in Guinea-Bissau, contributing to biodiversity conservation, human well-being, and climate mitigation. The project ensures a participatory restoration approach, involving local communities, park officials and local NGO's in the implementation and maintenance of mangrove restoration measures, and incentivizes community engagement by providing support to sustainable livelihoods development.

The restoration project activities consist of restoring mangroves through human-assisted natural regeneration. Additionally, other activities will be implemented that improve the livelihoods of community groups, including: identifying sustainable livelihood improvement measures, conduct capacity building needs assessment, build capacity where needed, and to support identified livelihood activities. See section 1.11 for a more detailed description of the project activities.

Location of the project

The project location consists of two sites, namely *Parque Natural dos Tarres de Cacheu* (herafter referred to as Cacheu National Park or PNTC) and *Parque Nacional de Cantanhez* (herafter referred to as Cantanhez National Park or PNC) in the West of Guinee-Bissau. Founded in 2000, the National Park of the Cacheu River Mangroves (PNMC) stretches over 88,615 ha in the north-western part of the country. The Cacheu River that gave its name to the park flows across the site and divides it in two different areas in terms of ecological, social and cultural patterns. The Park is essentially composed of mangroves (68% of the territory), and is considered as the greatest compact mangrove setting in West Africa (Rampao, 2015[1]). See section 1.12 for a detailed description of the project location.

How the project is expected to generate GHG emission reductions or removals

Guinee-Bissau, with more than 3,000 km2, holds the second largest mangrove area of Africa. Many mangroves have been lost due to slash and burn cultivation of *bolanhas* – traditional rice fields where hydrodynamics have been disturbed by dykes and channels. However, after a few years, these bolanhas did not yield enough and were abandoned. Additionally, in recent years many farmers have shifted to cashew nut production outside mangroves, while others have migrated to the city. As a result, tens of thousands of hectares of land lay bare. This provides an opportunity to restore the mangroves and store carbon in the process. The dykes around the fields, created to keep out the salty seawater, prevent mangroves from recovering naturally. In a recent project, we demonstrated that remediation of the soil and restoration of the hydrology by breaching the dykes offers opportunities for restoration at a cost that is up to 10 times lower compared to conventional tree-planting approaches. We will apply this approach here as well.

[1] Rampao. (2015). *Parc Naturel des Mangroves du Fleuves Rio Cacheu*. http://www.rampao.org/Parc-Naturel-des-Mangroves-du.html?lang=en

Description of scenario existing prior to the implementation of the project

In their natural state the soils of mangrove carbon ecosystems are largely anaerobic (without oxygen) and therefore the carbon into the soils decompose very slowly and can be stored for hundreds of years. Since these bolanhas are often under aerobic conditions and the whole hydrology and soil chemistry is disturbed, it is assumed that these sites will continue to lose carbon from their soils, providing another argument for the restoration of the hydrology to enable the return of mangroves (Andreetta, 2016[2]; Herr and Landis, 2016[3]). See also section 3.4.

Estimation of annual average and total GHG emission reductions and removals

The total estimated carbon stock that can be stored in 2,500 ha of restored mangroves in Guinea-Bissau after the project period of 79 years is 1,213,674 tons of CO_2-e in both living tree biomass (above and below ground) and soil. The average annual GHG removal during this period is 13,827 tCO2-e per year. Together with Face the Future, we calculated the carbon storage potential of restored mangroves on currently abandoned rice fields. We used Vasconcelos (2014)[4] for aboveground and belowground biomass and Andreetta (2016) for Soil Organic Carbon; these are the most site-specific values available. See Section 4 for more details on carbon calculations and assumptions.

1.2 Sectoral Scope and Project Type

Sectoral Scope 14: Agriculture, Forestry and other Land Uses (AFOLU). AFOLU project categories: Afforestation, Reforestation and Revegetation (ARR) & Restoring Wetland Ecosystems (RWE). The project is a grouped project.

1.3 Project Eligibility

The eligibility of the project was based on the AFOLU Specific Requirements in section 3.2 in the VCS standard (V4.1). This project is applicable to the ARR category since the activities under the project will increase carbon sequestration by restoring degraded mangrove sites via human-assisted natural regeneration of mangrove vegetation. The project activities do not convert native ecosystems, but rather restores the degraded native ecosystem.

The degradation of the project area is a result of slash and burn practices on mangroves for rice farming on so-called *bolanhas* – traditional rice fields where hydrodynamics have been disturbed by dykes and channels. However, in recent years many farmers have shifted to other agricultural practices or have migrated to the city. As a result, these sites are left unproductive and lay bare. This degradation was not driven by a strategy to benefit from GHG credits. There are no plans to restore the bolanhas in absence of project activity.

The project activities do not drain the ecosystem or degrade the hydrological function of the area. In fact, the project will restore natural hydrological conditions that are typical for a well-balanced mangrove ecosystem, including tidal changes. For this project, soil organic carbon is an important part of the total amount of the carbon sequestrated. It is expected that the activities will contribute to decreasing carbon emissions from soil carbon due to improved natural hydrological conditions. Hence, the project does fall under the WRC description in terms of Section 3.2.8.

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[2] Andreetta, A., Huertas, A. D., Lotti, M., & Cerise, S. (2016). Land use changes affecting soil organic carbon storage along a mangrove swamp rice chronosequence in the Cacheu and Oio regions (northern Guinea-Bissau). *Agriculture, Ecosystems and Environment*, 216, 314–321. https://doi.org/10.1016/j.agee.2015.10.017

[3] Herr, D. and Landis, E. (2016). *Coastal blue carbon ecosystems. Opportunities for Nationally Determined Contributions. Policy Brief*. Gland, Switzerland: IUCN and Washington, DC, USA: TNC.

[4] Vasconcelos, M. J., Cabral, A. I. R., Melo, J. B., Pearson, T. R. H., Pereira, H. de A., Cassamá, V., & Yudelman, T. (2015). *Can blue carbon contribute to clean development in West-Africa? The case of Guinea-Bissau. Mitigation and Adaptation Strategies for Global Change*, 20(8), 1361–1383. https://doi.org/10.1007/s11027-014-9551-x

1.4 Project Design

The project has been designed to restore 2,500 ha of land in the period between 2021 and 2023. This will be completed using a phased approach as a grouped project, starting with the restoration of approximately 500 ha in 2021 followed by 1,000 ha in 2022 and finally 1,000 ha in 2023. While this project follows the Verra VCS and CCB requirements, it is not designed with the intent of generating validated and verified carbon credits. Instead this project aims for *forest compensation*, which aims secure and restore ecosystem carbon equivalent to the carbon footprint of all the natural gas sold to Greenchoice customers but without certifying this carbon impact. Thus, the project will not be certified.

1.4.1 Eligibility Criteria

Each (new) instance will meet the appropriate VCS requirements. This includes eligibility criteria as described in Table 1, as well as the described applicability (Section 0), additionality (Section 3.5), project boundary identification (Section 3.3), baseline scenario (Section 3.4), and monitoring (Section **Error! Reference source not found.**). These new instances will only be considered eligible if they are subject to the same baseline scenario and community and biodiversity without-project scenarios. New instances will only be considered eligible if they follow the same basic project activities described in section 1.11. As new instances are brought into the program, they will by subject to the same stakeholder engagement processes and have all the same rights with respect for land, territory, resources, and FPIC as the initial instances.

Table 1: Eligibility criteria for selection of new instances

Eligibility Criteria	Means of verification
1. The new instances are former rice fields on tidal wetlands;	GIS & Remote sensing: LULC map 2020
2. They are located in the protected areas and peripheries of Cacheu National Park or Cantanhez National Park in Guinea-Bissau;	GIS & Remote sensing: Project boundary analysis
3. Minimum area of the new project instances is 1 ha;	GIS & Remote sensing: Project boundary analysis
4. The new instances should not be part of any other restoration or conservation project or scheme;	GIS & Remote sensing: Project boundary analysis
5. The new instances are classified as 'non forest' in the 2011 baseline map of the REDD+ project by the BioGuinea Foundation	GIS & Remote sensing: LULC map 2011
6. The new instances must not have been cleared of native ecosystems in a 10-year period prior to the project start date;	GIS & Remote sensing: LULC change map 2011-2020
7. They are abandoned for a minimum period of 5 years prior to the project start date; No agricultural activities are taking place at the project start and it is not planned those agricultural activities will return to the area of the new instances;	GIS & Remote sensing: LULC change map 2016-2020 Ground-based surveys: Stakeholder interviews
8. The new instances are degraded but not degraded beyond restoration potential;	Ground-based surveys: Field observations
9. The tidal barriers and drainage systems of the new instances should be intact at the project start date, preventing tides from coming in;	GIS & Remote sensing: LULC map 2020 Ground-based surveys: Field observations
10. No mangrove vegetation should be present within the boundaries of the new instances at the project start date;	GIS & Remote sensing: LULC map 2020 Ground-based surveys: Field observations
11. No (natural) regeneration of mangrove vegetation should be visible within the boundaries of the new instances at the project start date;	GIS & Remote sensing: LULC map 2020 Ground-based surveys: Field observations
12. The new instances will only be included if the landowner and users provide their informed consent prior to the start of the project activities;	Ground-based surveys: Stakeholder interviews
13. Absence of disputes over land tenure or resource access.	Ground-based surveys: Stakeholder interviews

For each new instance it will be checked whether the eligibility criteria presented in Table 1 are met. This validation of new instances will be done through the following assessments:

Project boundary analysis (GIS)

The project boundaries of the new project instances will be checked on location and area. With this analysis it will be verified whether the new instances are meeting eligibility criteria number 2, 3 and 4 (Table 1).

LULC maps & LULC change map (Remote Sensing)

Land Use and Land Cover (LULC) in the Project zone will be classified for different points in time, covering a period of 10 years before the project start date, using computer-based analysis of satellite images. These LULC classifications will be done for 2011, 2016 and 2020 and will result in corresponding LULC maps for the mentioned years. Based on the three different LULC maps change in land use or land cover will be detected in the project zone between 2011 and 2020, resulting in a LULC change map. The LULC maps and the LULC change map will be used to verify whether the new project instances are meeting eligibility criteria number 1, 5, 6, 7, 9, 10 and 11.

The different LULC maps will be produced in accordance with the IPCC Good Practice Guidance for Land Use, Land-Use Change and Forestry (IPCC GPG-LULUCF 2003). Suitable satellite sensors for the LULC classifications are e.g. Landsat, Sentinel and NICFI. These sensors are providing free global coverage.

Ground-based surveys

Some of the eligibility criteria (Table 1, numbers 7-13) will be verified in the field. This field-based verifications will be evidenced through the recording of observations and the capturing of representative photographs with geolocation. A tool (mobile app) could be developed, using ArcGIS Survey123, allowing for digital and tailored data collection in the field.

1.5 Project Proponent

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1.6 Other Entities Involved in the Project

Organization name	Face the Future
Role in the project	Advisory role in VCS and CCB compliance and monitoring
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Role in the project	Funding
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Organization name	Instituto da Biodiversidade e das Áreas Protegidas da Repíblica da Guiné-Bissau - IBAP
Role in the project	Project implementation partner
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Organization name	Associação de Jovens pela Defesa do Mangue do setor cacini – Ajodemasca
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1.7 Ownership

Restoration sites inside National Parks

The restoration sites in the project zone are partly situated in two national parks; Cacheu (PNTC) and Cantanhez (PNC) (see Figure 3, Figure 4, Figure 5 and Table 4). These are owned by the state and managed by the institute of Biodiversity of the Protected Areas (IBAP). An MoU will be signed between IBAP and Wetlands International Africa Western Coast and Gulf of Guinea (WIACO), and this will allow the implementation of project activities in the two protected areas.

According to the park management plan[5], there is a zoning map of land use planning inside the national parks:

- Core area – reserved for the conservation and protection of plant and animal species
- Buffer zone or transition zone – where it is possible to carry out certain development activities but, in a manner well controlled by the Park Management Board
- Development zone – where it is possible to practice sustainable development activities, including construction of houses, farms, small-scale agricultural activities, etc.)

Thus, the resource rights and access rights in the project zone inside the national parks are reserved for residents, but in certain sectors like fishing, honey harvesting, small-scale farming, this is only authorized with consent from the Park Management Board.

Restoration sites outside National Parks

Another part of the restoration sites in the project zone are situated in the periphery of the national parks. This land belongs to the State and is managed by local communities (see Figure 3, Figure 4, Figure 5 and Table 4). WIACO, through the 'To Plant or Not To Plant (TPNTP)' Guinea-Bissau project team, is in the process of signing collaboration agreements with these communities, starting with the communities where the first restoration activities will take place, which will be binding with the State as well.

In general, all communities have rural concessions which give them right of agricultural use of the land, which is established under customary law under the Law of the Land (see section 1.14.2). However, the rice fields that are to be restored have been abandoned by the communities and the collaboration agreement will guarantee the non-return of communities for possible agricultural use. The communities will however be able to benefit from the ecosystem goods and services offered by the restored mangroves. The customary law is implemented differently per community, and together with the community it is determined what the specific land use will be for the restored rice fields.

During stakeholder consultation, land use and user rights will be clearly documented, e.g. who has access to what resources, what is and is not allowed, and who is responsible for overseeing these established agreements. Moreover, any legal or customary tenure/access rights to territories and resources, including collective and/or conflicting rights, held by local stakeholders will be clearly identified.

All activities, both in the Protected Areas and in the so-called *peripherique* (see Figure 3), will also be monitored and supervised by the Ministry of the Environment and Biodiversity, through the Directorate of General Inspection, the Assessment Authority of the Competent Environment and Coastal Planning Office.

1.8 Project start date

The start date of the inception phase is on 01-10-2020. The project start date is 01-08-2021.

[5] IBAP (2008) Plano de Gestão Parque Natural dos Tarrafes do Rio Cacheu – PNTC Guiné-Bissau 2008 – 2018

1.9 Project Crediting Period

No verified carbon credits will be claimed from this project. However, for the purpose of this exercise, the assumed project crediting period is 79 years. The crediting period starts with the breaching the dykes to let water seep in, starting on 01-08-2021 till 01-01-2100.

1.10 Project Scale and Estimated GHG Emission Reductions or Removals

Project Scale	
Project	x
Large project	

Year	Estimated GHG emission reductions or removals (tCO_2e)
Year 1 – 2021	3,120
Year 2 – 2022	12,480
Year 3 -2023	28,080
Year 4 -2024	43,680
Year 5 -2025	59,280
~	
Year 79 – 2100	1,213,674
Total estimated Ers (incl. Subtraction of Risk Buffer of 10%)	1,092,307
Total number of crediting years	79
Average annual Ers	13,827

1.11 Description of the Project Activity

The project will support the long term restoration of the mangrove and conservation of biodiversity, human well-being and climate mitigation. The project aims to contribute to mitigation of climate change by restoring mangrove vegetation cover through Ecological Mangrove Restoration. The recovery of the vegetation will restore the carbon stocks in the vegetation and soil. Moreover, it is assumed that these abandoned rice fields continue to lose carbon from their soils, providing another argument for the restoration of the hydrology to enable the return of mangroves. The project is not located within a jurisdiction covered by a jurisdictional REDD+ program. The project is funded by Greenchoice and technical assistance for the PD development and monitoring is supported by Face the Future. All fieldwork to the establishment of the baseline was supported by WIACO. The project will benefit clearly from carbon impact financing by strengthening the community-based management of the vulnerable areas.

Project management

Project management will be a shared responsibility of Wetland International's Global Office, the regional office (based in Senegal) and the project office based in Guinea-Bissau. Together they have the overall responsibility for the design, implementation and monitoring and evaluation of the project and lead all activities. Wetlands International is the project proponent, and the institution in charge of operating and managing the project. WIACO is responsible for on the ground implementation of the project activities. It will run all on-the-ground activities including leading mangrove restoration, providing technical support for communities, organize meetings and monitoring the project. See Table 2 for more detail on roles and responsibilities of the different entities involved.

Table 2. Project roles and responsibilities

		WIGO					WIACO			WIGB		Greenchoice	FtF	IBA
Geographical scope	Activity	PgD	PM	TO	AO	CO	AO	CO	PgD	PM	PO		Consult.	
Global	Overall project management	C	AR	C	I	C	C	C	C	C	C	I	C	
Global	Overall implementation and M&E plan definition	C	AR	R	C	C			C	C	C	I	R	
Global	Overall budget definition mgt and reporting (financial + narrative) to Greenchoice	C	AR	C	R	C	C		C	C	C	I		
Global	Strategic oversight	AR	C	C										
Global	Coordination in wider mangrove portfolio	AR	C	C					C	C				
Global	Support overall project coordination	C	C	AR					C	C	C		C	
Global	Financial and administrative support		C	C	AR		C							
Local	Support financial mgt and reporting		C				AR		I	C	C			
Local	Administrative and contractual tasks		C				AR		C	C	C			
Global	Project communications	C	C	C		AR		R		C	C	C	C	
Local	Project communications	C	C	C		C		AR	C	C	C		C	
Local	Overseeing the project team in Guinea-Bissau		I				C		AR	C	C			
Local	Technical implementation and day to day supervision of project officer									AR	C			
Local	Preparing and providing budgetary information for the administrative officer at the Regional Office		I				C			AR	C			C
Local	Reporting on achievements to regional programme director		I	I					I	AR	C			C
Local	Determine implementation and M&E plan, budget and resource requirements		C	C					AR	R	R			
Local	National project execution & coordination		C	C						AR	R		C	
Local	Project field implementation		I	I						C	AR			
Local	Provide support the PM (e.g. draft reports)									C	AR			

Local	**Provide full project funding as per approved budget. All project costs are funded before expenses are made**		C						AR	C	
Local	**Advisory role in application of carbon standards and methodologies, and monitoring project impacts**	C	C	C			C	C		AR	
Local	**Implementation of project activities within Cacheu and Cantanhez National Parks**		I	I			A	C			R
Local	**Implementation of project activities in peripherique of Cacheu National Park (together with village communities)**		I	I			AR	R			
Local	**Implementation of project activities in peripherique of Cantanhez National Park**		I	I			A	C			

Legend	
WIGO	Wetlands International Global Office
WIACO	Wetlands International West Africa
WIGB	Wetlands International Guinea-Bissau
PgD	Programme Director
PM	Project Manager
TO	Technical Officer
AO	Administrative Officer
CO	Communication Officer
Consult.	Consultant

RACI Roles	
AR	Accountable + Responsible
A	Accountable
R	Responsible
C	Consulted
I	Informed

Project activities

Project activities are based on a problem analysis developed with input from regional experts. The main problems have been described as:

1. Community vulnerability, and limited access to income and food
2. Unsustainable mangrove management in Guinea-Bissau

These issues are related and connected in several ways. The cause and effect relations of these main issues are described in Figure 1 and Figure 2.

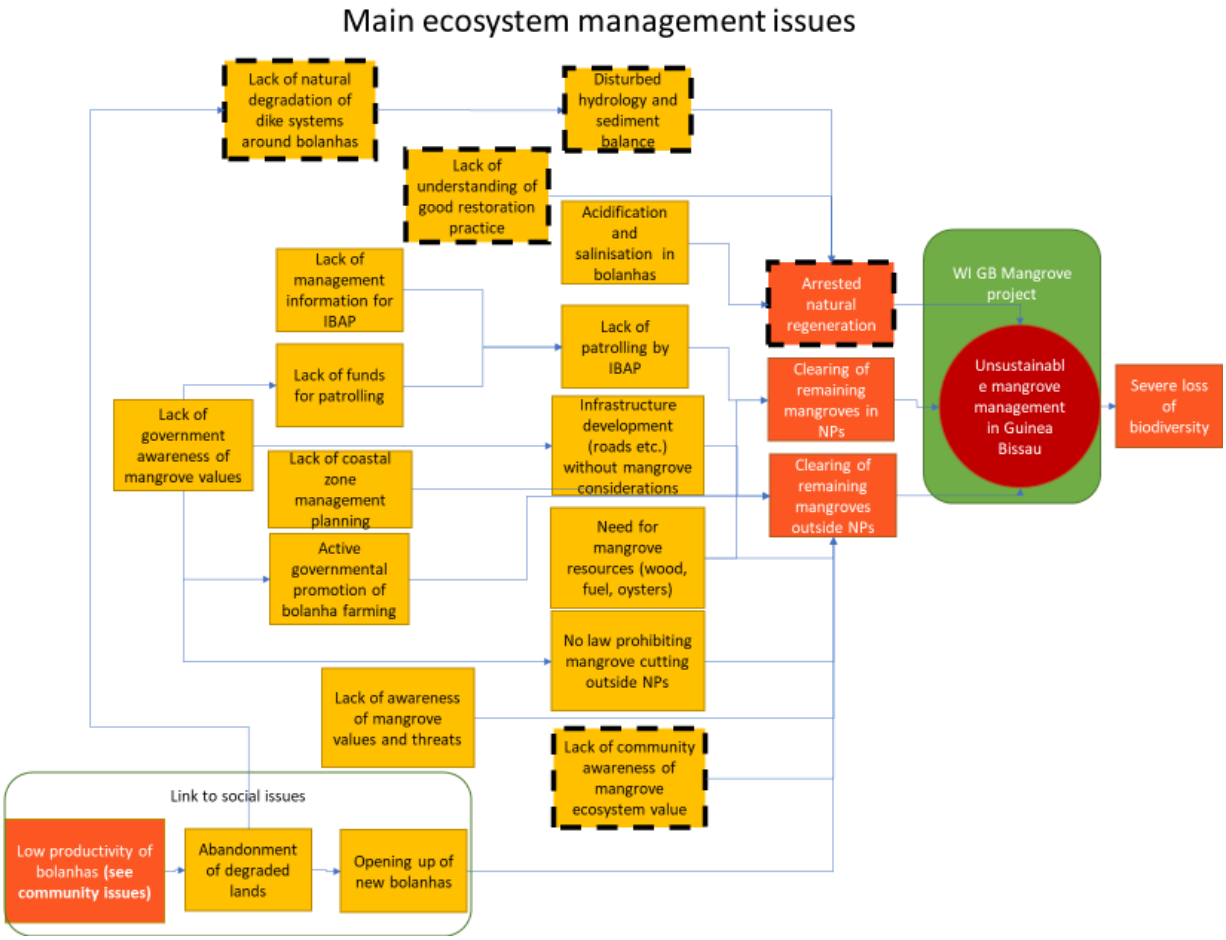


Figure 1: main social issues around mangrove areas in Guinea-Bissau. Outlined in black are the issues addressed in this project.

Communities living in and around mangrove areas in Cacheu and Cantanhez National Parks experience vulnerability to shocks and limitations in access to food and income due to several reasons. They are largely dependent on upland agriculture and bolanhas farming.

<u>In scope of the project:</u> This project will focus on addressing this issue by collaboratively developing livelihood priorities and alternatives, making community groups more resilient and increasing the income from diversified sources. Through this, we aim to directly improve the livelihood of 1,000 people.

<u>Out of scope of the project:</u> Other issues as described in the social issues problem analysis are addressed in other projects executed by Wetlands International and its partners in Guinea-Bissau. For example, other projects may address low productivity in existing in-use bolanhas together with government and technical partners, to ensure there is no need to further open up bolanhas to produce rice.

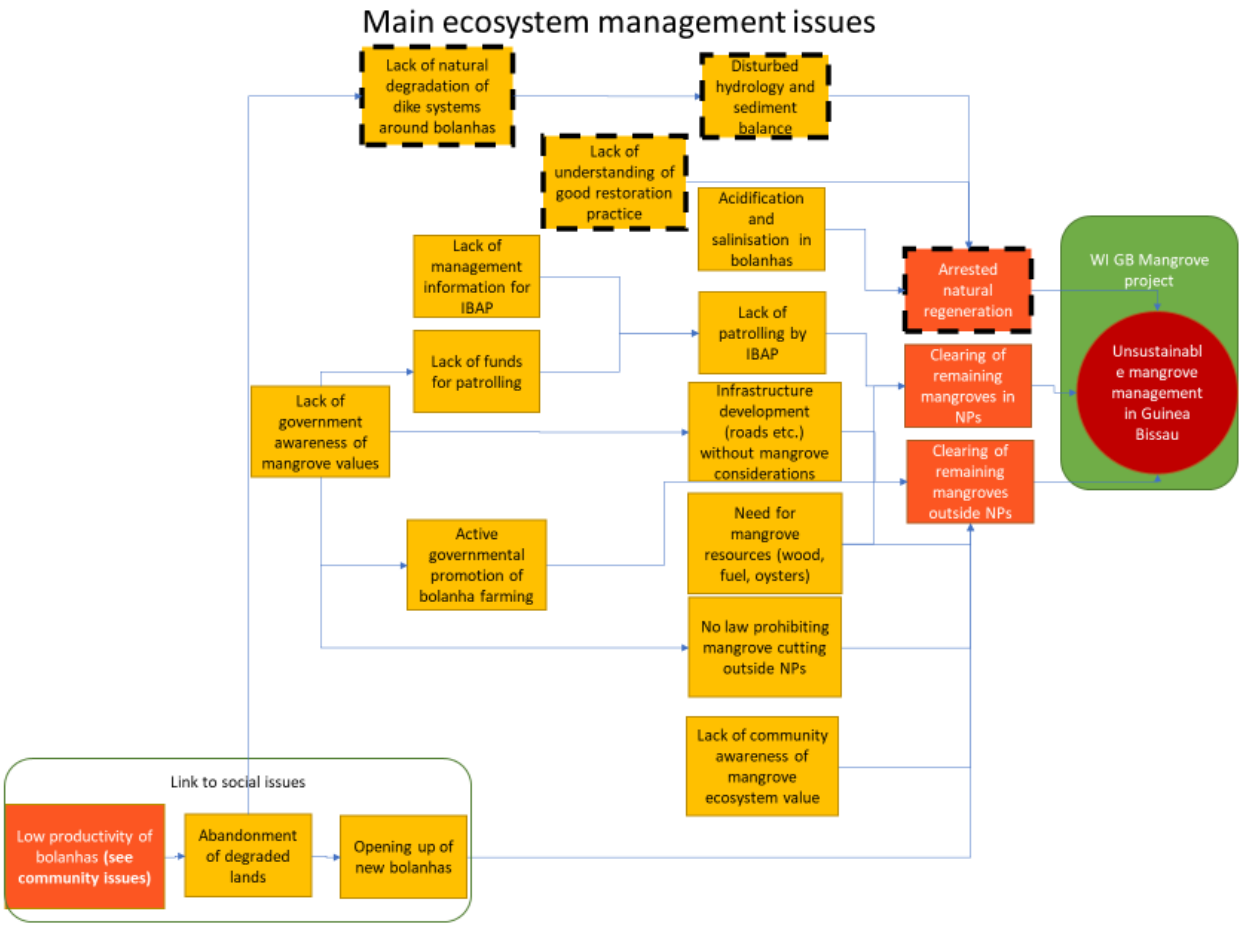


Figure 2: main ecosystem management issues around mangrove areas in Guinea-Bissau. Outlined in black are the issues addressed in this project.

Mangroves in Guinea-Bissau have historically been cut down to allow for bolanha rice farming. This degradation process is declining, due to socio-economic shifts in the wider region. However, there are still instances of new rice fields being developed outside national park boundaries. Additionally, the bolanhas that have been abandoned are not naturally regenerating due to the intact dykes around the fields.

In scope of the project: This project will address the lack of natural regeneration of mangroves in abandoned rice fields by collaborating with community groups, government agencies, and local organisations, to restore 2,500 hectares of mangroves through 'Community-Based Ecological Mangrove Restoration' (CBEMR).

Out of scope of the project: Additional issues identified in the problem analysis above, such as the continued mangrove cutting for agricultural development, will be addressed in other projects of Wetlands International and its partners. For example, such other projects will focus on the protection of mangroves outside national parks by collaboratively developing a new mangrove law.

The activities under this project that address the issues described above are categorised in 5 work packages.

Work package 0: Inception phase

During the inception phase the project is prepared for implementation. This entails activities in the field as well as ensuring all documentation is in place to start the project.

- Scoping project location, potential partners, and sites

- Developing the Project Design Document (PDD)
- Determining baselines for objectives
- Developing and formalising collaboration agreements with national level partners
- Setting criteria and map restoration areas, and select restoration sites (2,500 ha in total)

Work package 1: Field activities

Project implementation regarding restoration work and livelihood work, fall under work package 1. These activities are carried out in and around the PNTC and PNC national parks. The activities in this work package broadly entail:

- Restoration of 2,500 ha of mangroves
    - Identifying sites
    - Per community: confirming willingness and participation in restoration activities
    - Strengthening capacity in CBEMR and other relevant areas
    - Restoring mangroves in restoration sites
- Implementation of livelihood activities among all collaborating community groups
    - Identifying communities to collaborate with
    - Assessing needs for livelihood support with communities through a participatory analysis.
    - Strengthening community capacity
    - Supporting livelihood activities (of at least 1,000 people)

Work package 2: National policies

Work package 2 is funded by Greenchoice, but falls outside the scope of this PDD. Therefore, this work is not described in detail in this document. In this work package, the project will upscale restoration success and aim for replication of restoration measures by partners. The activities in this work package broadly entail:

- Bringing on board partners and build capacity around CBEMR
- Promoting the availability of funds for large scale restoration
- Addressing national policies for mangrove restoration

Work package 3: Monitoring and Evaluation

The monitoring and evaluation activities fall under work package 3. The activities in this work package broadly entail:

- Setting indicators for the identified objectives and targets
- Developing the monitoring framework
- Regular monitoring of sites
- Regular monitoring of livelihood activities
- Regular monitoring of biodiversity in the project zone
- Adaptive management based on monitoring results
- Evaluating success rate against the targets

Work package 4: Project maintenance

A lean two-year maintenance program to ensure long term sustainability of interventions. The activities in this work package broadly entail:

- Yearly monitoring of local organisation and community engagement
- Yearly monitoring of restoration activities
- Definition of options and process for continued monitoring after the end of the initial 5-year project plan

The mangroves restoration activities and livelihood activities (Work Package 1) are described in more detail in the two sections below.

1.11.1 Mangrove restoration activities

This project is subdivided in the following phases:

Inception phase

An initial phase in which the grounding for the project takes place, and in which this PDD is developed; the basis for the activities in the implementation phase.

Implementation phase

The phase in which the holistic approach of mangrove restoration is executed to benefit climate, communities and wildlife, based on the PDD yearly and 3- year objectives.

Management and transfer phase:

Activities and funding are developed to do regular monitoring (annually) with a focus on local organisation and community engagement (to prepare them for transfer).

Monitoring phase:

After the project end date (so after management and transfer phase in 2025), the monitoring phase is entered. During this phase Greenchoice and Face the Future monitor the project. The monitoring interval will be determined during the management and transfer phase with input from Wetlands International.

An overview of deliverables and milestones per project phase can be found in Table 3. After the project implementation phase, the management and transfer phase is entered. During this phase, Greenchoice and Face the Future (with input from WI) will monitor the project. The monitoring interval will be determined during the management and transfer phase.

Table 3: Deliverables and milestones per project phase

Phase	Period	Deliverables	Milestones
Inception	Oct 2020 - July 2021	Signed Project Agreement + PPP If agreed by Parties in advance, Finance Report justifying a payment for the preparation phase	NA
Implementation Yr 1	August - December 2021	Signed PDD, Narrative report, Finance Report (inception Phase)	Minimum of 500 ha restored, minimum of 30% of livelihood measures implemented, and a minimum of 30% of conservation measures implemented
Implementation Yr 2	Jan - June 2022	Narrative report Finance report (FY2021)	Adequate documentation in a Report that supports progress towards the annual deliverables mentioned

Implementation Yr 2	July – Dec 2022	Narrative report	Adequate documentation in a Report that supports progress towards the annual deliverables mentioned Minimum of 1,000 ha restored, minimum of 60% of livelihood measures implemented, and a minimum of 60% of conservation measures implemented
Implementation Yr 3	Jan – June 2023	Narrative report & Finance report (FY2022) Including internal audit (covering Inception to Dec 2022).	Adequate documentation in a Report that supports progress towards the annual deliverables mentioned
Implementation Yr 3	July – Dec 2023	Narrative report	Adequate documentation in a Report that supports progress towards the annual deliverables mentioned
Manangement & Transfer Yr 1	Jan - Dec 2024	Final report = start of Management phase. Finance Report (FY2023)	Minimum of 2,500 ha restored, minimum of 100% of livelihood measures implemented, and a minimum of 100% of conservation measures implemented
Management & Transfer Yr 2	Jan - Dec 2025	Narrative + finance report. Monitoring Report (format to be agreed). Finance Report (end of Phase) including an External Audit of the whole project period (Inception and Implementation)	Adequate documentation in a Report that supports progress towards the annual deliverables to be determined related to sustainability of the project impact

Restoration activities implemented during the implementation phase will be tailored based on the local conditions at each site.

1.11.2 Community activities (e.g. capacity building, training, income generating activities…)

The goal of the community engagement activities is to improve livelihoods and to diversify and improve income of communities in and around the Cacheu and Cantanhez National Parks. To do so, the project will implement several activities that improve the livelihoods of community groups.

Concretely, in each community we work with, we will:

- Present and detail the problem analysis of Figure 1 and Figure 2 in a participatory way;
- Identify sustainable livelihood improvement measures, ranging from training in improved beekeeping techniques and providing materials for oyster culture, to addressing needs identified in the value chain of mangrove products. The exact activities depend on the participatory analysis;
- Conduct capacity building needs assessment, and in case of sub-optimal organisational capacity, (inhibiting the capacity to collaborate on restoration and livelihood activities) built capacity;
- The project will then support identified livelihood activities in collaboration with community groups.

Secondly, the activities are aimed at raising awareness of values of- and threats to mangroves. By raising awareness and through the restoration activities, the management of the mangrove areas will be improved, improving the delivery of ecosystem services to the communities. This will ultimately benefit them in terms of improved fish stocks and other benefits. Awareness raising will be done through radio broadcasts, village visits, and other outreach methods.

1.12 Project Location

The project zone[6] is located in and around two National Parks in Guinea-Bissau; Cacheu (PNTC) and Cantanhez (PNC). The different project sites (instances), together called the project area[7], where the mangrove restoration activities will be implemented by the project are situated inside these national parks and in the *peripherique* outside the national parks (see Figure 3). Any new instances to be added in the future will be located inside these areas.

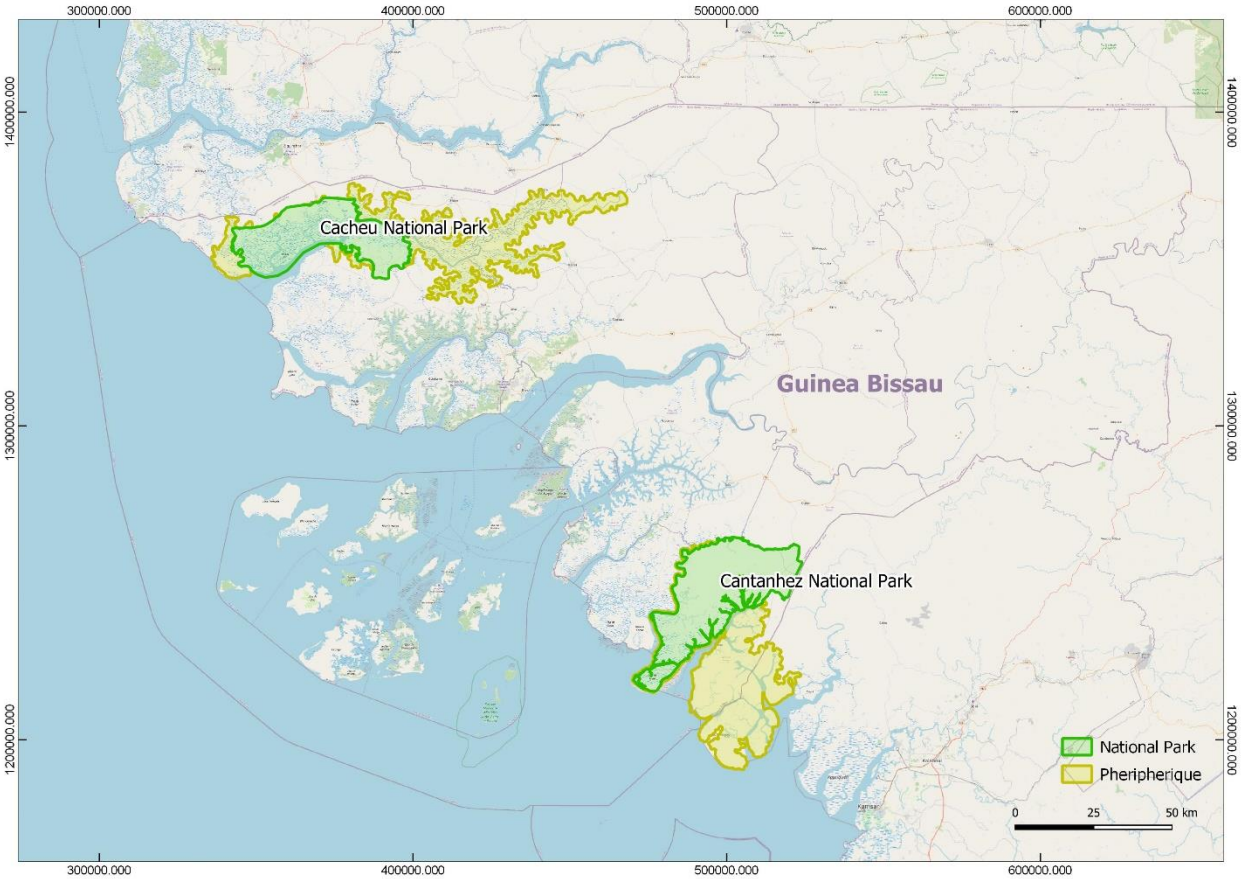


Figure 3 - Project zone location: Cacheu and Cantanhez National Parks and its peripheriques

The first group of instances (restoration sites) are presented in the two maps below (Figure 4 and Figure 5). More details on each individual restoration site selected for the first group of instances are given in Table 4. The sites have been preselected using eligibility criteria described in section 1.4, specifically the ones with 'remote sensing' means of verification. The team will, using expert judgement and in advance of implementation, check the sites against the eligibility criteria with 'in the field' means of verification.

[6] 'Project zone' is defined as the area encompassing the project area in which project activities that directly affect land and associated resources, including activities such as those related to provision of alternative livelihoods and community development, are implemented. For grouped projects, the project zone also includes all potential project areas (i.e., all potential new land areas in which project activities that aim to generate net climate benefits may be implemented in the future after the initial validation).

[7] The 'project area' is defined as the land area in which project activities aim to generate net climate benefits.

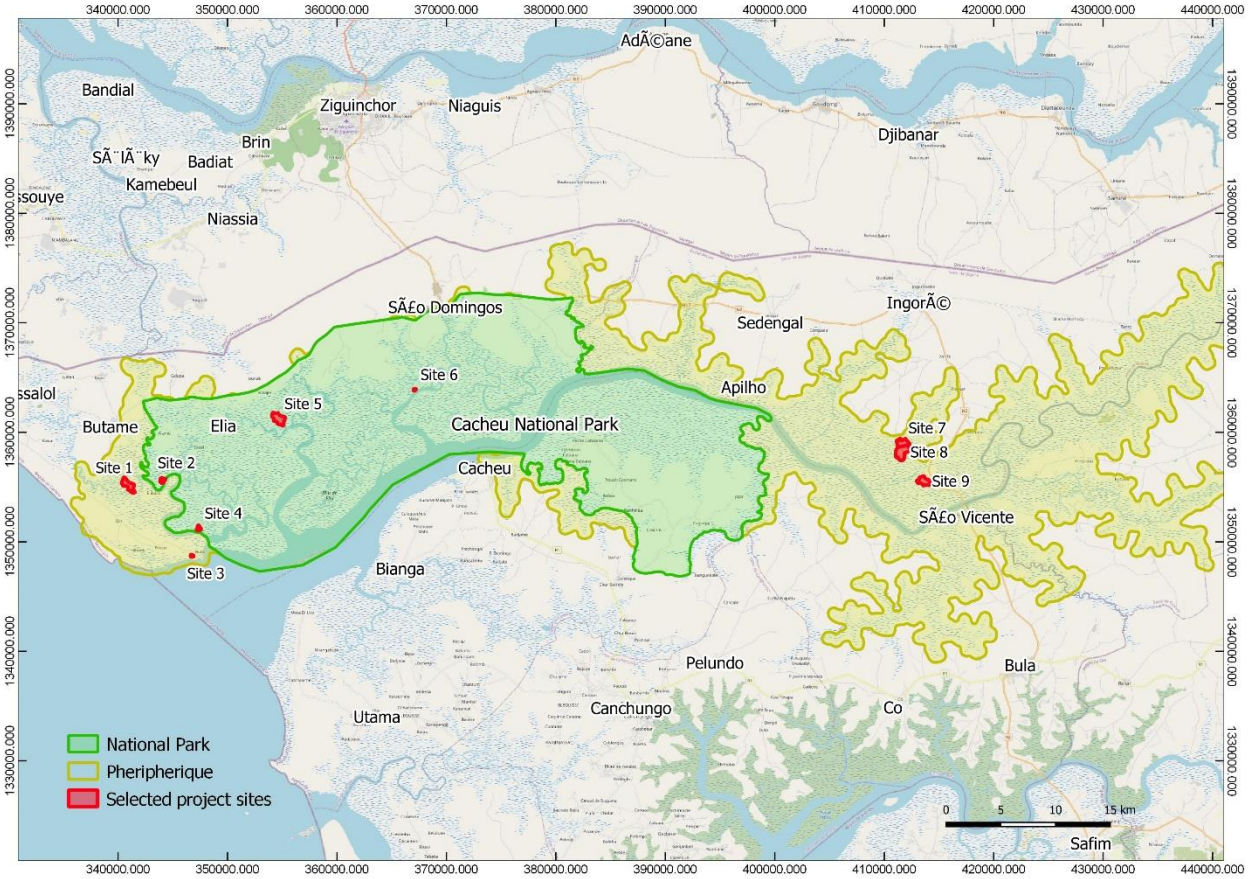


Figure 4 - Locations of first group of restoration sites in and around Cacheu National Park

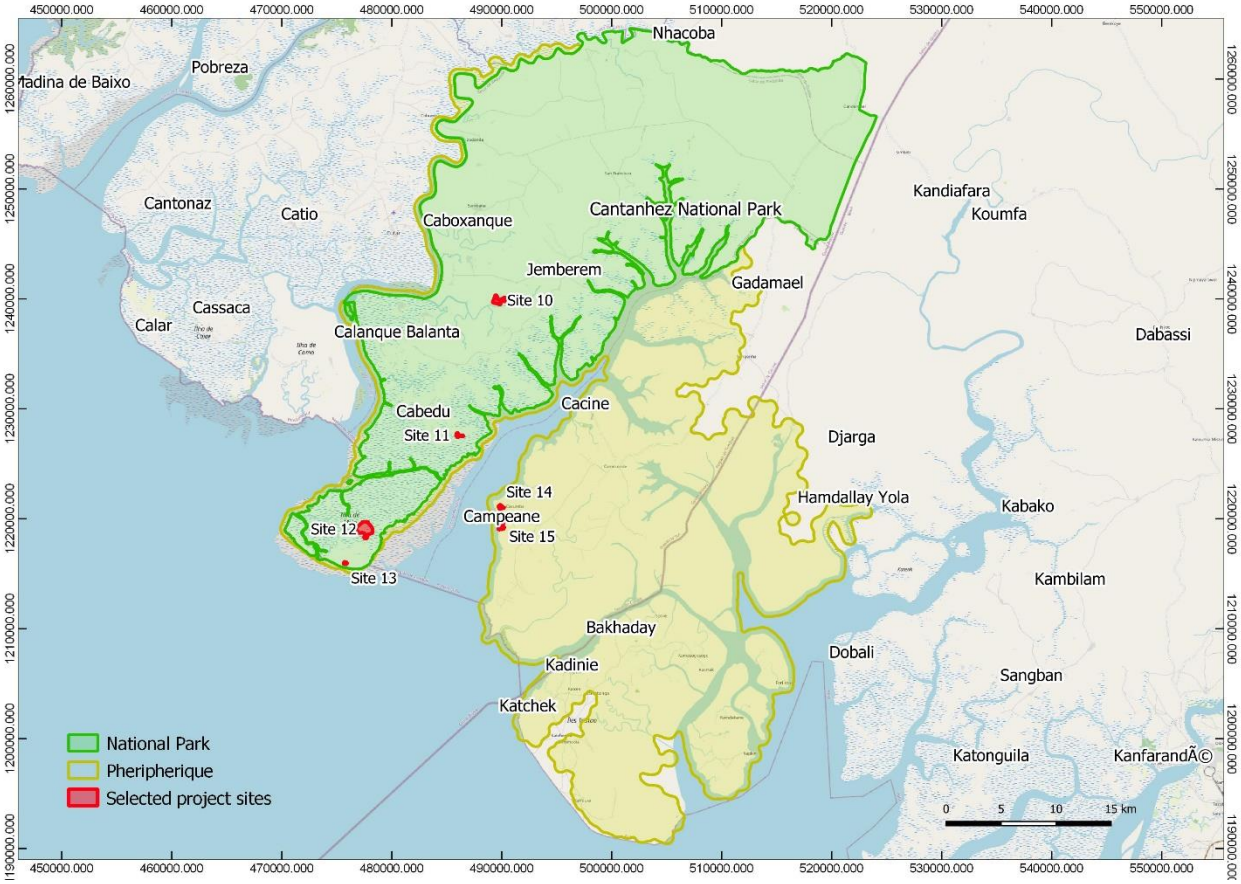


Figure 5 - Locations of first group of restoration sites in and around Cantanhez National Park

Table 4 - Site details of selected instances (first group of restoration sites)

Map	ID	Site name	Area
	1	Lala Cacheu peripherique	79 ha
	2	Bamit Cacheu National Park	16 ha

Map	ID	Site name	Area
	3	Bulole Equel Cacheu peripherique	5 ha
	4	Bulole Cacheu National Park	12 ha
	5	Kouladie Cacheu National Park	90 ha
	6	Cache Signou Cacheu National Park	4 ha
	7	Bedam Kangle Cacheu peripherique	63 ha

Map	ID	Site name	Area
	8	Pundame Norte Cacheu peripherique	117 ha
	9	Djiu Antoninha Cacheu peripherique	67 ha
	10	Caiquena Cantanhez National Park	52 ha
	11	Bolama kante Cantanhez National Park	11 ha
	12	Melo-2 Cantanhez National Park	136 ha

Map	ID	Site name	Area
	13	Melo-1 Cantanhez National Park	5 ha
	14	Boulama Cassinti Cantanhez peripherique	10 ha
	15	Boulama Campana Cantanhez peripherique	31 ha
Total Area			689 ha

Based on a landcover classification, we have mapped future potential sites to be restored, as a preselection of the 2,500 ha. These are given in Figure 6 and

Figure 7. This adds up to a total area of 30,000 ha. Within the 30,000 ha classified as ‘potential restoration sites’, the project will identify actual restoration sites for the project.

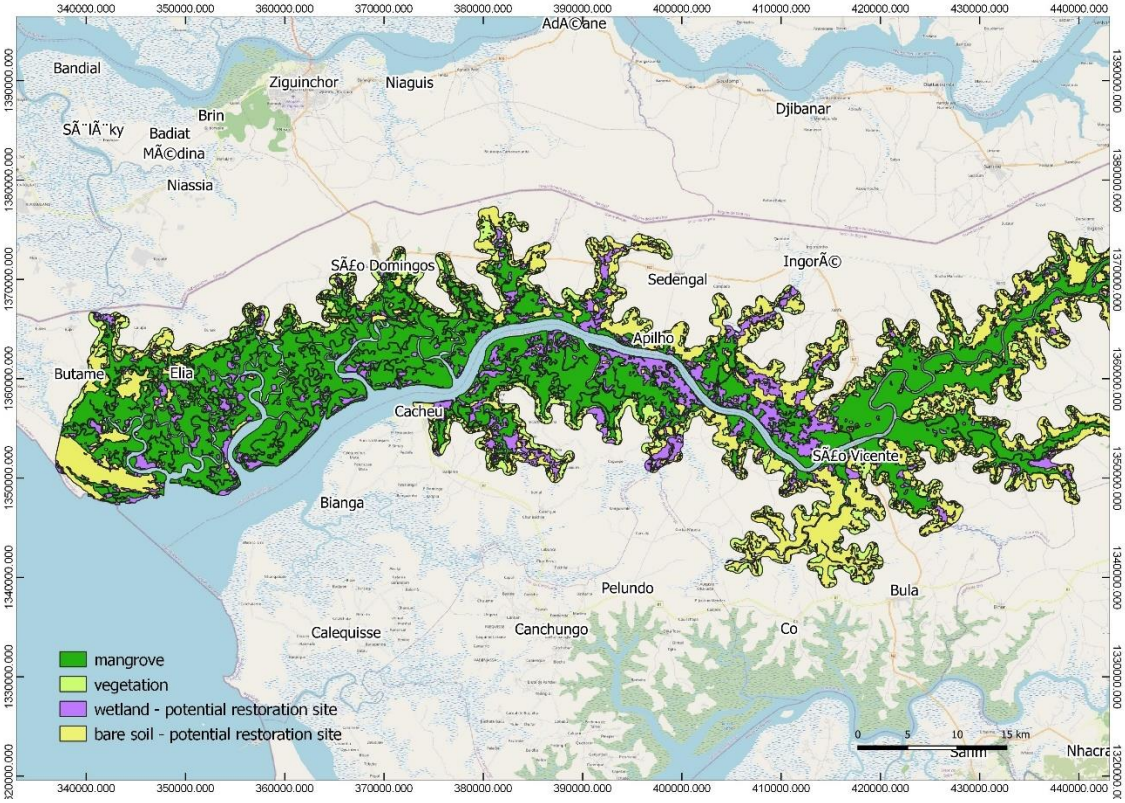


Figure 6: Potential restoration sites in Cacheu National Park

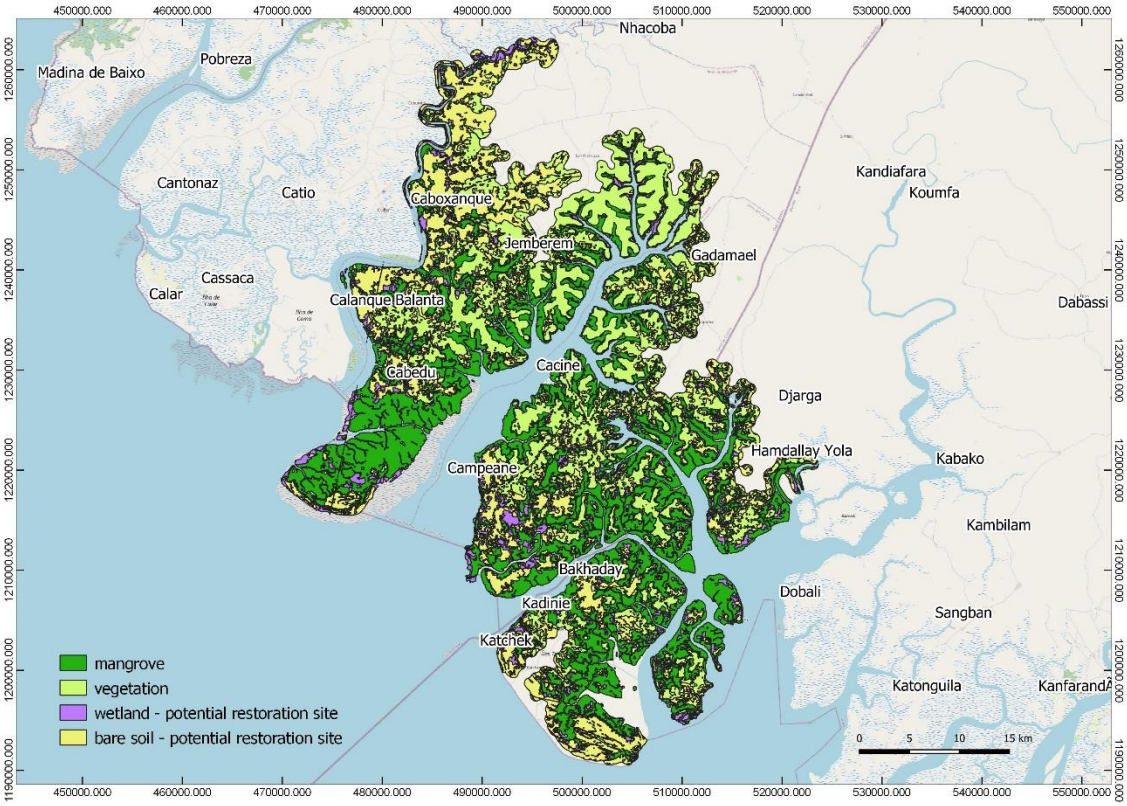


Figure 7: potential restoration sites in Cantanhez National Park

1.13 Conditions Prior to Project Initiation

Guinea-Bissau is one of the poorest countries in the world, with a poverty rate of 69% (World Food Program, 2021[8]). It has a population of roughly 1.98 million (CIA Factbook, 2021[9]), and almost 85% of the population depend on agriculture as their main source of income, with cashew nuts being the primary crop (World Food Program, 2021). Guinea-Bissau has been plagued by political instability since it became independent in 1974, resulting in a lack of development and high levels of poverty. Nearly 70% live below the poverty line, with high infant and maternal mortality rates and a countrywide chronic malnutrition rate of over 25%. In July 2021, 14.3% of Guinea-Bissau households were food insecure, though this figure can be as high as 51% in some areas (World Food Program, 2021).

With more than 3,000 km², Guinee-Bissau holds the second largest mangrove area of Africa. However, many mangroves have been lost due to slash and burn cultivation of *bolanhas*. After a few years these bolanhas did not yield enough and were abandoned. The project aims to contribute to mitigation of climate change by restoring original mangrove vegetation cover by human-assisted natural vegetation. For site selection it is taken into consideration that these bolanhas are abandoned for a minimum period of 5 years prior to project start date, and they have not been cleared of native ecosystems in a 10-year period prior to the project start date. This shows that the project intends to act as a net carbon sink, and did not generate GHG emissions prior to project initiation for the purpose of their subsequent removal.

[8] World Food Program (2021), Guinea-Bissau. Retrieved from https://www.wfp.org/countries/guinea-bissau on 20 December 2021.

[9] https://www.cia.gov/the-world-factbook/countries/guinea-bissau/

In the baseline scenario the former rice fields remain abandoned and it is not expected that mangroves will be converted back to other land uses. In open-ended collaboration agreements, it is agreed with the communities that mangroves restored through this project will not be removed and the land will not be used for agriculture anymore. The project aims to develop and support livelihood activities for the communities which can be self-sustained on the long term. The present and prior environmental conditions are described below.

1.13.1 Physical parameters

Climate

Guinea-Bissau has two pronounced seasons, the monsoonal hot and rainy season from May to November, and the hot and dry season from November to April. According the Köppen-Geiger climate classification system, Guinea-Bissau has a tropical savanna climate (Aw) with an average temperature of 27 ºC with minor variation during the year (25-29 ºC). Around 80% of the annual rainfall occurs in the rainy season, with the highest precipitation in August around 500 mm/month. During the dry season, monthly precipitation is often close to zero.

General topography

The relief in the PNC is essentially flat, with a maximum height of 44 m. The northernmost area of the PNC, roughly to the north of the Guileje - Bedanda line, has average altitudes and is less influenced by the presence of rivers and arms of the sea. To the south of that line, two zones can be considered. To the Southwest, in the area that forms part of the drainage basin of the Cumbijã River, the slope is very attenuated and there are extensive alluvial plains on the little indented banks of this river. To the Southeast, in the area that drains into the Cacine River, the relief is slightly more accentuated, with no alluvial plains. The banks of this river are very indented, penetrating a lot on land.

As part of the coastal plain, the PNTC area does not have an expressive relief. That is, the surface of the terrestrial part is almost flat, monotonous or with light and not very expressive undulations, mainly at the edges of the great Cacheu River. The area is characterized by the accumulation of marine deposits (vasa) and the successive formation of sandy strands, including dunes, especially in the three islands that make up the northern part of the park, Elia, Djobel and Arrame. In general, the altitudes are located in a few meters, with the maximum being around 5 meters.

Hydrology

The Republic of Guinea-Bissau is heavily marked by the presence of estuaries and mangrove areas. Both Cacheu and Cantanhez National Parks are located in the coastal area, thus influenced by these characteristics. A dense network of drowned valleys demarcates this area. Almost all of Guinea-Bissau is low-lying and bathed daily by tidal water that reach as far as 100 km inland. Tidal penetration into the interior, facilitated by the country's flat coastal topography, carries some agricultural advantages: the surge of brackish water can be used to irrigate the extensive drowned rice paddies.

PNC

The PNC is largely delimited by the Cacine and Cumbijã rivers, with wide valleys and brackish or salty estuaries, where the tidal range is very sharp and can reach 6 meters. Most of the freshwater courses are not permanent and drain into the Cumbijã River, on whose flat margins there is a large part of the areas of cultivation of flooded rice or bolanhas.

The rivers Cacine and Cumbijã are hydrologically distinct. The Cacine River can be considered an arm of the sea or a river, with no significant supply of fresh water from the respective basin to the respective drainage basin. On the contrary, the Cumbijã River has a relatively long course, which starts at the Balana River and a drainage basin of appreciable dimensions, with a large supply of fresh water, especially during the rainy season.

PNTC

The Cacheu River that gave its name to the park flows across the site and divides it in two different areas in terms of ecological, social and cultural patterns. The river forms very complex meanders, flanked on their banks by the vegetation of the Mangrove. The penetrating inlets of the sea are rare in the southern part of the islands, where very long and uneven beaches predominate. In general, these sea arms suffer the permanent influence of salt water and only in the rainy season, they get considerable volumes of fresh water from surface runoff. The hydrological balance has shown the existence of more water in the soils from June to October and deficit in the December and May (INEP, 1988).

Soil

The soil groups most representative in Guinea-Bissau are Ferralsols, Plintosoils, Gleysoils, and Fluvisoil (Teixeira, 1962). In Cacheu National Park, 75% of soils are Fluvisols/Gleysols and 25% Ferrasols. In Cantanhez National Park, approximately 41% are Fluvisols/Gleysols, 58% Ferrasols and 2% Arenasols.

Ferralsols, which in Teixeira's nomenclature correspond to ferralitic and fersialitic soils, cover most of the northern and southern regions of Guinea-Bissau and are the dominant soil group in the plateau areas of the PNC. The natural vegetation of Guinea-Bissau Ferralsols is mainly open forest, though, when weather conditions allow, can develop dense sub-humid forest. This is the case of Cantanhez, with more than 2,000 mm of annual rainfall and deep soils create the ecological conditions that favor the establishment of the sub-humid forest. They are among the deepest soils in the country, but are relatively poor in organic matter and in mineral nutrients.

In the coastline and lower river areas there is occurrence of *Fluvisols*. These soils are fine texture of fluvial origin, often affected by salt or brackish water and, therefore, rich in sodium. They correspond to hydromorphic soils derived from marine alluvium (Teixeira 1962). The natural vegetation on these soils consists of mangroves. These are fertile soils and thus these soils are the ones used for growing rice in salty water rice fields. They have a low cation exchange capacity and a generally low degree of base saturation. In the PNC, the Fluvisols occur mainly in the downstream section of the Cumbijã River, in the Southeast, south of Caboxanque, where they were originally occupied mainly by mangroves. (IBAP, 2008[10]).

Plinthossols are generally located in the lower parts of the catenas, of which upper parts are Ferralsols. In the PNC they occupy small areas of the Southeast region of the Park, namely in the area of tabanca Amindara (IBAP, 2008).

Gleysols are typically associated with freshwater lalas. In the PNC they occur to a greater extent in the low and flat areas of the interior valleys on the banks of the Cumbijã River and its tributaries in the North and Northwest areas of the Park. (IBAP, 2008)

Arenosols are sandy soils, essentially quartz, with little organic matter, deep and well drained, derived in general from consolidated dunes. In the PNC they occur in the extreme south, namely the area of Cabedu and Ilha de Melo (IBAP, 2008). The soil map of the PNC can be found in Figure 8.

[10] IBAP (2008), Plano de Gestão Parque Natural dos Tarrafes do Rio Cacheu - PNTC Guiné-Bissau 2008 – 2018. Instituto da Biodiversidade e das Áreas Protegidas de Guiné Bissau. https://rsis.ramsar.org/RISapp/files/45673327/documents/GW2229_mgt1505.pdf

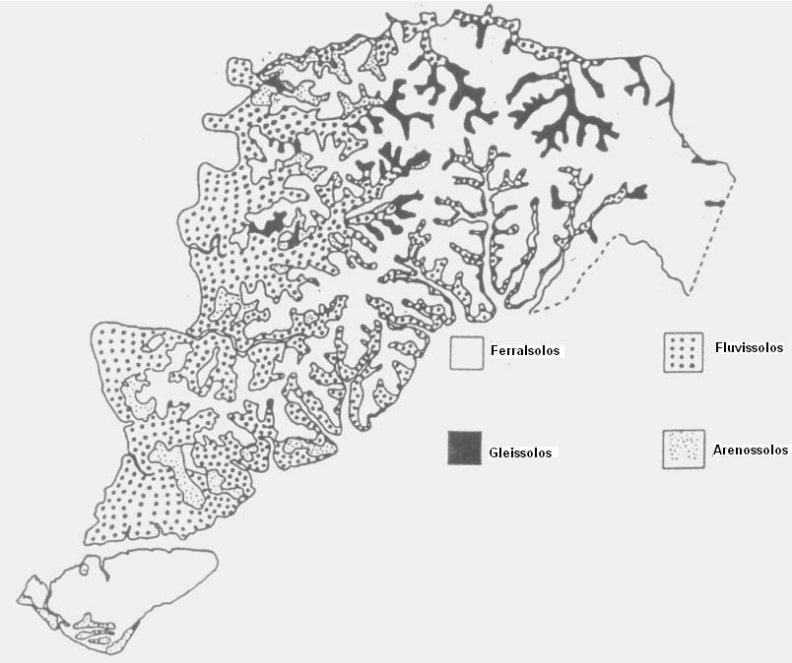


Figure 8: Soil map of the Cantanhez National Park (adapted from Anginot, 1988)

Vegetation

Guinea-Bissau has a very varied vegetation cover: dense and open forests, savannas, palm groves and mangroves. The mangroves cover the whole coastal zone and are found up to 150 km in the Guinean territory. The mangroves ecosystem is the most representative vegetative formation of the coastal zone of Guinea-Bissau, covering about 10.1% of this coastal zone, 9% of the national territory, and 2.5% of the world's mangroves in total (Biai, 2015[11]). The distribution of the different plant species in the ecosystems found in the project zone is dictated by the degree of immersion caused by the tides. See section 6.1.1 for a more detailed description.

Cacheu National Park

The park's total vegetation extends across an 88,615 ha area, 68% of which is covered by mangals. Mangals are assemblages of woody plants known as mangroves. These mangals exist in high salinity and hard coastal conditions (e.g. extreme tides, strong winds), and are adapted to low oxygen waterlogged conditions. The mangals in the Cacheu National Park include the following species: *Rhizophora racemosa, Rhizophora mangle, Rhizophora harrisonii and Avicennia germinans* (COR).

In addition to mangals, the park also contains large areas of palm forest, savannah and paddy fields (bolanhas), mixed with small population centers. The palm forest area is made up of various species: *Pterocarpus erinaceus, Dialium guineense, Khaya senegalensis, Parinari excelsa, Landolphia sp* and *Elaesis guineensis*. The Savannah area, which constitutes the smallest association in the park, is made up of gramineous plants from different genera, mostly *Panicum, Hypoltenio* and *Melinis*. There is a scattering of acacias (*Acacia arabica, Acacia senegal* and *Acacia catechu*) (Garcia del Toro and Más-Lopez, 2019[12]).

Cantanhez National Park

[11] Biai, J. (2015). Strategy and national action plan for the biodiversity 2015-2020. *Bissau: The Republic of Guinea-Bissau–The State's General Office of the Environment.*

[12] Garcia del Toro, E. M., & Mas-Lopez, M. I. (2019). Changes in land cover in Cacheu River Mangroves Natural Park, Guinea-Bissau: The need for a more sustainable management. Sustainability, 11(22), 6247.

The ecosystems of Cantanhez National Park include river flood-plains and mangroves on the northern and western banks of the upper reaches of the Rio Cacine and areas of savanna and forest extending inland. The forest is dominated by *Afzelia africana*, *Alstonia congensis*, *Antiaris africana*, *Ceiba pentandra*, *Dialium guineense, Ficus spp.* and *Parinari excelsa*.

1.13.2 Social parameters

The total population of Guinea-Bissau is estimated at 1.98 million (CIA Factbook, 2021), of which one-fifth lives in the capital city of Bissau. The remainder is distributed among other regions, mainly rural areas. Population growth is 2.52% and life expectancy at birth is estimated at 63.3 years. Nearly 70% live below the poverty line (US $ 1 per day per person), with high infant and maternal mortality rates and a countrywide chronic malnutrition rate of over 25%. In July 2021, 14.3% of Guinea-Bissau households were food insecure, though this figure can be as high as 51% in some areas (World Food Program, 2021). The main activities are agriculture, forestry and artisanal fisheries.

Since the last two centuries, many exotic species have been introduced in the country for cultivation, and many of them have gained widespread acceptance among local farmers. First driven by peanuts, and later with cashew, Guinea-Bissau has rapidly become one of Africa's major exporters. This production relies mostly on smallholder agriculture (Havik et al., 2018[13]).

Below the details for Cacheu and Cantanhez National Parks are provided. Please note that information is scarce, and that it was not always possible to find matching information for both locations.

Main settlements and socio-cultural information

Cacheu National Park

The Cacheu National Park is one of the most populated national parks in Guinea-Bissau, with more than 28,000 inhabitants in 2009 (the most recent available census data). Men comprise 51.2%, while women comprise 48.8% (INEP / INEC – Census and socio-economic and environmental study, 2009). The population registered within the PNTC by age group is young, with approximately 72% of the age between 0 and 29 years, and 29.9% of people of the age between 0 and 9. The population in the park is distributed over 44 villages. This population consists of various ethnic groups. The distribution of the villages in the national park can be seen in Figure 17.

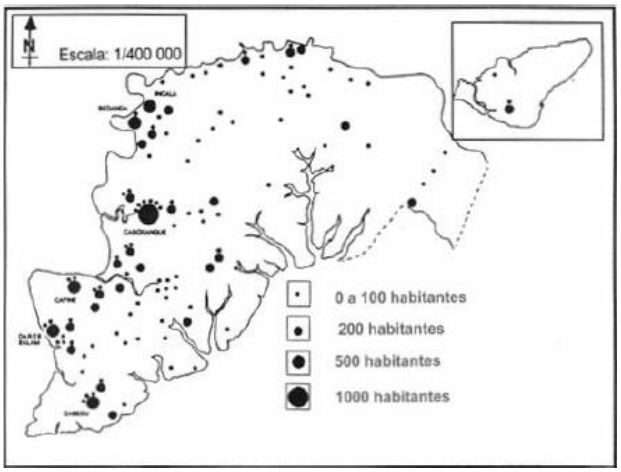
The parks ethnic groups include Felupes (32%), Manjacos (27.9%) and the others with a lower percentage 21.2 and 15.9% respectively Balantas and Cassanga. Creole is considered the language of communication in general, although it is spoken by a small percentage of the population within the villages of the park, around 15%, with ethnic languages being more widely spoken (INEP / INEC, 2007).

Traditional power is exercised by the local rules. In practice, state power and traditional power coexist, with the advice of elders usually being listened to and consulted. Often, it is the traditional power holders themselves who are elected for local office. Felupe and Manjaca societies are strongly ranked according to age. The elders concentrate powers and privileges, while the younger ones are left with the obligations.

Cantanhez National Park

[13] Havik, P.J., Monteiro, F., Catarino, S., Correia, A. M., Catarino, L., Romeiras, M. M. (2018) Agro-Economic Transitions in Guinea-Bissau (West Africa): Historical Trends and Current Insights. *Sustainability, 10(3408)*. https://doi.org/10.3390/su10103408

Total population of the Cantanhez National park is 24,692 inhabitants, distributed to 159 villages. There are six main ethnicities: Soussu, Tanda, Nalus, Balanta, Fula and Pepel. The region's population presents an average annual growth rate above 2% and an approximate population density of 21 inhabitants/km^2 much lower than the national average. An overview of the different management zones and location of villages in Cantanhez can be seen in Figure 18.



Land use and economic activities

Cacheu National Park

The main ethnic group of the national park, representing more than 32% of the people, are Felupe people. This ethnic group lives and adapts to the living conditions of the coastal area and is sedentary. They are almost all fishermen and farmers, living off fishing and agriculture (rice). A common trend is for people aged between 17 and 22, mostly men, to emigrate to Senegal, Portugal, Spain, France, Mauritania, and other countries, in search of job opportunities.

At park level, trade is practically non-existent. The little trade that is practiced is directed to the large markets in the region (Cacheu, Canchungo, São Domingos) and Ziguinchor in Senegal. The population residing in the park is experienced in transferring their products from the villages inside the park to these large markets. Therefore, local trade at village level is a common practice.

Among the Felupes, measures are in force that only allow hunting or fishing according to the rules of the village, with prohibitions on burning the forest, setting fire to fields or houses, picking fruits from the sacred forests, drinking water from springs reserved for crocodiles, etc; it is also not allowed to collect oysters at certain times of the year, for example from August to February.

However, there is strong pressure on the areas and natural resources of the PNTC, especially in the following resources:

- Shrimp fishing at the mouth of the Cacheu River;
- Cutting of mangroves to obtain firewood for smoking fish;
- Cutting of mangroves and trees for the construction of houses and fencing;
- Cutting large trees for the construction of canoes;
- Deforestation of large areas of forests for shifting agriculture – upland rice production;
- Clandestine hunting of wild fauna and birds with more effective weapons;
- Exorbitant charcoal production, with risk of forest fire;
- Cutting and felling of trees for honey extraction, often accompanied by forest fires;
- Collecting various fishery and forest products, thus often disrespecting the traditional rules that have ensured over time a controlled exploitation of these resources

Cantanhez National Park

Agricultural activity is the occupation of around 80% of the Guinean labour force and in the Cantanhez area this percentage tends to be higher due to the lack of employment in other areas. Shifting agriculture is the most traditionally used upland farming technique. It involves the felling of natural vegetation in areas that,

after being cultivated for two or three years, are left fallow for long periods to restore soil fertility. This technique is sustainable for low population densities, since the percentage of cultivated area at any time is always low in relation to the total available area. However, as the population increases, greater food production becomes necessary, which is why more and more areas are occupied by agriculture and there is a decrease in fallow time and a faster reuse of previously cultivated areas, possibly without a complete regeneration of soil fertility.

The PNC is characterized by a diversity of production systems, closely associated with agro-ecological regions and the ethnic matrix. Traditionally, it is one of the main rice production centres in the country, due to the high soil fertility, the large amount of average annual rainfall and the existence of bolanhas – conditions that allow the creation of marketable surpluses. This cultivation system is practiced essentially by the Balantas ethnic group, and to a lesser extent by Nalus and Sossos. Rainfed production is practiced essentially by the Fula ethnic groups, as well as a considerable part of the Nalu and Sosso ethnic groups and other minority ethnic groups.

Fruit growing is one of the region's potentials, essentially developed by the Muslim ethnic groups, and more recently by the Balantas who are dedicated to the production of cashews. The adaptation of cashew trees to poor savannah soils and rapid return on invested capital during the installation phase of its cultivation, enabled its introduction into the productive system of the region's ethnic groups. The activity of extracting palm oil from palm trees is carried out by almost all ethnic groups in the area, mainly women. The extraction of palm wine is carried out essentially by Manjacos from the northern region of Guinea-Bissau.

The making of mats, sofas, benches are made from Raphia sp. And are household services of great utility by the communities, constituting an income-generating activity, in particular for women.

The forest is the main source of domestic fuel for communities. Inhabitants of the PNC also use firewood from the forests in product processing, food manufacturing and timber.

1.14 Compliance with Laws, Statutes and Other Regulatory Frameworks

The project is in compliance with all relevant local, regional and national laws and regulations of the country. Most importantly: the Constitution of the Republic of Guinea-Bissau, the Forest Law, Land Law, laws related to the national parks including the Law of Protected Areas. Moreover, the Labor Law is included which is relevant for workers' rights.

1.14.1 International, regional and community level

Guinea-Bissau is signatory of the Convention about the Biological Diversity, but it is also a contracting party of several other conventions, protocols, agreements and organizations, international and regional, important for the conservation of the ecosystems and sustainable use of the biodiversity and natural resources. One of these conventions relevant to the project is the **Convention about the Wet Zones of International Importance, especially Habitat of Aquatic Birds (Ramsar)**, UN/UNESCO, Ramsar, February of 1971. And "The Protocol of 1982 ", UN/UNESCO, Paris, December of 1982. Cacheu National Park was included in the RAMSAR list in 2015, and Cantanhez since 2011.

There is a Memorandum of Cooperation between Wetlands International and Ramsar, as stated in 'The Ramsar Convention's International Organisation Partners (IOPs), 2018 – 2021[14].

The IOPs provide invaluable support for the work of the Convention, by providing expert technical advice, field level implementation assistance, and financial support, both from their headquarters units and from their national and regional offices and affiliates and from their expert networks. In addition, they embody the philosophy of the Convention and its wise use concept and support the use of the Convention guidelines in their own work around the world. (https://www.ramsar.org/about/the-international-organization-partners).

[14] https://www.ramsar.org/sites/default/files/documents/library/moc_iops_23042018_e.pdf

1.14.2 National level

In the last decades, a variety of laws in the environmental domain was legislated in the country. Some of these laws, regarding the protection and management of the biological diversity and control of pollution are highlighted: Basic Law of the environment, Law of the Land, Law of the Environmental Evaluation, Forest Law, Law of the Protected Areas, and the Water Code.

Regarding environment:

The Constitution of the Republic of Guinea-Bissau clearly establishes the rights over territory and the rule of the government over natural resources, as stated in Article 10 "The state of Guinea-Bissau holds exclusive competence to maintain and explore natural resources, living or non-living", and Article 12 "The State has ownership over the soil, the underground, mineral goods, the main energy sources, the forest wealth and social infrastructure".

The **Basic Law of Environment** (LBA, 01/2011) is considered the fundamental and general law of the Environment. It defines legal bases for correct use and management of the environment and its components. Environmental measures to protect and improve wellbeing, health, social and cultural development of communities, most notably include those that protect the air and the climate. The project contributes to the purpose of protecting and restoring the environment.

The **Law of Environmental Evaluation** (10/2010). This law approves the Environmental Impact Assessment Regulation. It specifies the legal framework and regime to be satisfied by research, environmental and social impact assessment, as well as the requirements to be satisfied for obtaining natural resources use licensing through controls to be carried out on projects, programmes, public or private policies, which may impact on the natural environment and human health. Small-scale projects like this one, as it deals with specific aspects related to the restoration and conservation of the environment, benefit from exemption of the EIA requirement.

In the biodiversity domain, Guinea-Bissau defined the guidelines for the establishment of Protected Areas. The country counts on the **Law of the Protected Areas** (LQAP), decree-law no. 5-A – 2011. This law approves the Juridical Regime of the Protected Areas, which seeks to safeguard the ecosystems and the animal and vegetable plant populations that shelter in them, their biological diversity, as well as to promote the durable social and economic use of parts of the national territory, including watercourses, lakes and sea.

This law also defines the role of the **Institute of Biodiversity of the Protected Areas (IBAP)**, with the Decree 2/2005. The management of protected areas are exclusively ministered by IBAP. This institute has as attributions to propose, to coordinate and to execute the policies and the relative actions to the biodiversity and the protected areas in the whole extension of the national territory, to promote and to safeguard the ecosystems, the biodiversity and the protected areas, as well as, by all possible human and technical means available, the durable social and economic use of these resources inside the national territory, including the courses of continental and sea waters. However, IBAP is not legally required to restore degraded mangrove areas, thus the project activities are additional to the management obligation of the park. The project works with and through IBAP, the legally appointed institution for managing the Protected Areas.

Regarding lands

The Law of the Land (Law 5/1998)[15], regulates land-use planning and rational exploitation of land. Land is property of the Government of the Republic of Guinea-Bissau. Private land rights do not exist in Guinea-Bissau, but is accessible to all people in the country. The exploitation of land is allowed under concession or authorization granted by the Government. There are two types of concessions: rural, destined to agriculture, and urban, destined to building of houses, industrial, commercial or cultural activities. This law also stipulates that the whole use of the land should have in consideration the ecological value and care for the protection of the soils and their regeneration. This Law lays down the requirements in order to obtain a land concession (including entities benefiting from a free concession and different types of authorization). See also section 1.7

[15] http://extwprlegs1.fao.org/docs/pdf/gbs16728.pdf

on Ownership. The project cooperates with IBAP, the government organisation managing the National Parks, and with the communities that have customary rights to using the land in the project area.

Regarding fauna and flora

The Law of the Forest, Decree 4-1/1991 seeks to optimize the contribution of the forest resources for the economic, social, cultural and scientific development of the Country, in agreement with the national, regional and local interest, and the population's life quality. Since this law was established in 1991, several attempts have been made to establish a new juridical aspect.

The new Forest Law, instituted by the Decree-law no. 5/2011 defines the management and the different forest regimes; it institutes the forest funds (especially the forest rates), the sales of the products, and the protection of the forest zone in the proximity of sources, along the water courses, lakes and ponds. This new law considers the environmental evaluation for the wood industries, which constitutes an innovation. Other positive aspects are the expression of the will, intensifying the management decentralization, to reinforce the community management of the forest, to rationalize the forest management and to reform the taxation of the forest to make it socially and economically more reasonable and efficient. The project is in line with the Law of the Forest.

Regarding water

The **Water code**[16], established under Decree-Law No. 5-A/1992, defines the legal regime of all activities relevant with water management, defining the institutional framework in order to implement the national policy on water rights, guaranteeing the control and management on water resources, regulating water uses for domestic rural, agricultural, industrial, hydropower or other purposes (including navigation, aquaculture), guaranteeing the protection of the water quality in order to avoid freshwater pollution or its waste. The project aims to restore mangroves, which have a positive impact on water quality.

Labour

The **Labour Law** was approved on April 5th, 1986. It governs all work relationships and established that other relationships not governed by law must be derived from Work Contracts. IBAP and WIACO and their implementation partners operate in accordance with such law, keeping registries and following its legal obligations in relation to workload, payment of social contributions and taxes. Any future worker, hired by the project, will also follow the labour law.

1.15 Participation under Other GHG Programs

1.15.1 Projects Registered (or seeking registration) under Other GHG Program(s)

The project has not previously been registered or sought registration under any other GHG programs.

1.15.2 Projects Rejected by Other GHG Programs

The project has not previously been rejected by any other GHG program.

1.16 Other Forms of Credit

1.16.1 Emissions Trading Programs and Other Binding Limits

IBAP has initiated a project under VCS 'Community-Based Avoided Deforestation Project in Guinea-Bissau' which is not overlapping the project areas in the National Parks of Cacheu and Cantanhez. This project is a REDD+ project, targeting mangrove conservation. Figure 9 and Figure 10 illustrate that the IBAP REDD+

[16] http://extwprlegs1.fao.org/docs/pdf/gbs39315.pdf

project area in Cacheu National Park does not overlap with this projects' restoration sites in this area (no map is currently available of the IBAP REDD+ project area in Cantanhez National Park) .

This makes our project complementary rather than overlapping. Carbon generated under either of the projects will therefore not be double counted. A public declaration will be written to communicate cooperation and complementarity of the two projects.

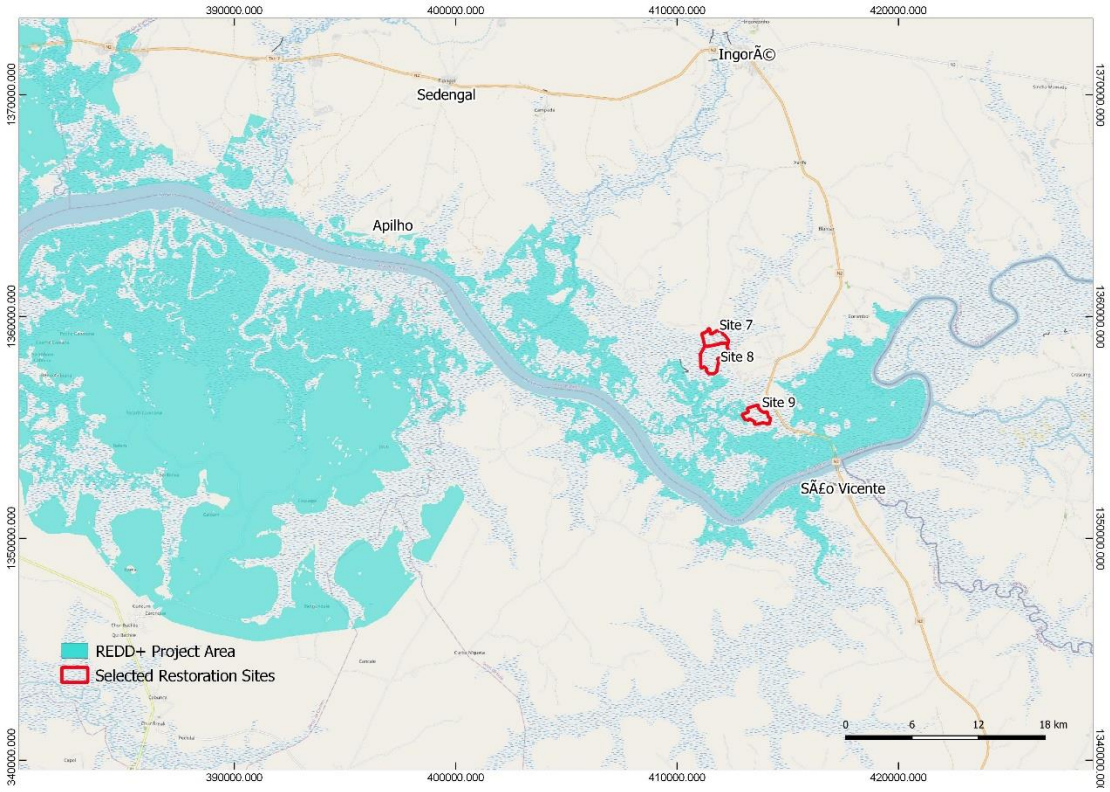


Figure 9 – Selected restoration sites vs. IBAP REDD+ project area in Cacheu National Park (part 1)

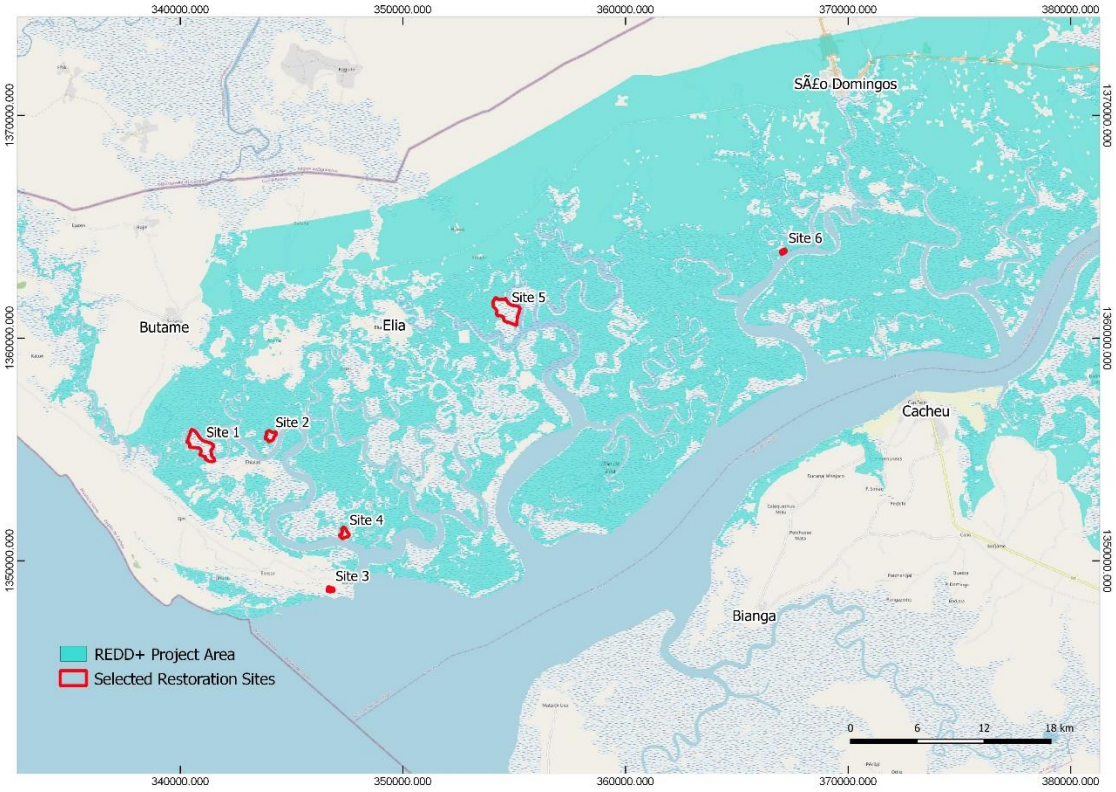


Figure 10 – Selected restoration sites vs. IBAP REDD+ project area in Cacheu National Park (part 2)

1.16.2 Other Forms of Environmental Credit

Not applicable

1.17 Additional Information Relevant to the Project

1.17.1 Leakage Management

Not applicable, see Section 3.2.3: leakage.

1.17.2 Commercially Sensitive Information

Not applicable

1.17.3 Sustainable Development

As a member of the United Nations, Guinea-Bissau adopted all 17 SDG as a universal call to action to end poverty, protect the planet, and ensure that all people enjoy peace and prosperity by 2030[17]. The Strategic and Operational Plan 2015-2020 "Terra Ranka" Guinea-Bissau's Vision 2025 indicates the future destination and the 2015-2020 operational plan of its major axes (the strategic orientations). A few of the most important strategic axes are: biodiversity and natural capital (aiming to sustainably preserve and enhance the country's natural resources) and human development (aiming to enhance the potentiality of the Guinean population). The plan represents ambitious plans to ensure food security, diversified income, biodiversity conservation,

[17] https://www.fao.org/faolex/results/details/en/c/LEX-FAOC176530/

climate action and empowerment of deprived populations, especially woman. These strategic actions and ambitions are in line with our project activities.

By rehabilitating at least 2,500 ha of mangroves in Guinea-Bissau, the project contributes to climate mitigation, biodiversity conservation, and human well-being. In particular the project will contribute to the following sustainable development goals:

- SDG 1: No Poverty
- SDG 2: Zero hunger
- SDG 5: Gender equality
- SDG 13: Climate Action
- SDG 14: Life below water
- SDG 15, Life on Land

SDG 1: No Poverty; SDG 2: Zero hunger; SDG 5: Gender equality

Through community engagement activities, the aim of the project is to improve livelihoods and improve income of communities in and around the two national parks, ensuring gender equality throughout the process (see section 2.1.2). To do so, the project will implement several activities (see 1.11.2) that contribute to above mentioned SDG's. These activities will result in the following predicted positive impacts:

- Increased efficiency of food processing
- Increased sustainability of food production
- Diversification of sources of income
- Improved sustainability of mangrove usage
- Regional improvement of sustainability usage of mangrove through improved perception and additional financing/support attracted to the region

SDG 13 Climate Action

Restoration of the hydrology of the abandoned bolanhas will enable the return of mangroves which results in carbon sequestration. Moreover, it is assumed that, in the baseline scenario, these abandoned rice fields continue to lose carbon from their soils, providing another argument for mangrove restoration for carbon emission reduction.

SDG 14 Life below water; SDG 15, Life on Land,

The ecosystems (mangroves, mudflats and palm savannahs) inside both National Parks as well as the mudflats and remaining intact mangroves, palm savannahs and dryland forests outside the parks hold significant biodiversity value. Therefore, by restoring the mangrove ecosystems and increasing forest coverage there is a great potential for biodiversity in the area where the project is situated. Furthermore, the high net primary productivity of mangroves and subsequent nutrient rich swells benefit the surrounding marine and coastal environment increasing both diversity as well as marine biota mass, which in turn provides an important food source for (water)birds and mammals.

1.17.4 Further Information

Not applicable

2 SAFEGUARDS

2.1 No Net Harm

No net negative environmental or socio-economic impact is expected.

2.1.1 Human Rights

The project respects internationally proclaimed human rights and shall not be complicit in violence or human rights abuses of any kind as defined in the Universal Declaration of Human Rights. Also, the project does not discriminate with regards to participation and inclusion. In a joint initiative WI, WWF, IUCN and CI committed to a Conservation and Human Rights Framework that includes principles and objectives these organisations apply in the execution of their work[18]. The project office in Guinea-Bissau is responsible to observe compliance to these principles and address potential violations if they are observed/reported.

2.1.2 Gender Equality and Women's Rights

The project proponent strives at equal rights and opportunities for men and woman and marginalized groups. WI's general commitments and guiding principles towards inclusion and equality are described in WI's Code of Conduct[19]. Furthermore, WI's has a specific Gender policy[20] and Ethical policy[21]. The local communities will have an active role in restoration activities and the project will promote a collaborating environment where both men and woman can actively participate in the project activities and livelihood programmes.

2.1.3 Community Health, Safety and Working Conditions

The project activities are not expected to have any negative effects on community health. The project will provide participating community members with safe and healthy working conditions. Transportation will be organised, and they will receive protective gear, proper equipment as well as packed lunch.

The project aims to contribute to a better nutritional quality of food produced by the communities through training and implementation of modern cultivation techniques such as the improvement of rice productivity and market gardening.

2.1.4 Displacement and Resettlement

Forced Eviction and Displacement

No people will be forcefully evicted or relocated, and the project will avoid physical and economic displacement of assets and access to assets that leads to loss of income sources or means of livelihood. Restoration and conservation activities will influence the return of biodiversity, so that local communities will be able to rationally exploit this biodiversity and develop their local economy. Together with the communities, a collaboration agreement will be signed under which will be determined how they can sustainably benefit from the ecosystem goods and services of the restored rice fields.

[18] Download here: https://www.wetlands.org/download/16269/ or see https://www.wetlands.org/about-us/our-accountability/

[19] Download here: https://www.wetlands.org/download/16276/or see WI's accountability page https://www.wetlands.org/about-us/our-accountability/

[20] https://www.wetlands.org/download/16288/

[21] https://www.wetlands.org/download/16337/

In the same way, the income-generating activities that we develop with the communities will contribute permanently to economic development because they will directly affect the households that live around the ecosystem and participate in its conservation.

Land Tenure and Other Rights

The project is not seeking to change existing land tenure, we will work on the basis of a clear protocol for reclaiming abandoned rice fields. Formally these abandoned rice fields belong to the State of Guinea-Bissau. There are customary and informal rights in the case of active fields for the production of rice (see section 1.7 Ownership).

2.1.5 Cultural and spiritual values

Sites of Cultural and Historical Heritage

The project area does not include locations, structures, or objects with historical, cultural, artistic, traditional or religious value or intangible forms of culture. Project areas are generally conservation areas, which are in some cases under government protection. Originally, project areas were zones of biodiversity and, naturally, with the restoration of the mangroves they will gradually recover their original biodiversity. There are sacred sites in remaining forest area in the project zone, but these are not expected to be situated in the mangroves or to be affected by project implementation for that matter (see also section 7.1.1).

2.1.6 Consultation communities and FPIC

There are no indigenous people in the area. Local communities living in / near abandoned rice fields do not have formal rights / titles, but are the first to have rights to use the natural resources of these restored areas, which is established under customary law under the Law of the Land. Specific land use rights for the restored rice fields will be further established in detail under a collaboration agreement between the communities and WIACO (see section 1.7 Ownership).

The project recognizes the relationship of the local communities with the mangroves, rice fields and the landscape, their needs and challenges as well as their knowledge are of vital importance for project success. Therefor the project places emphasis on consultation of local stakeholders and applies a participatory approach in certain elements of the project design (e.g. Livelihood program). The consultation process is described in detail in section 2.2. To ensure local consent, WIACO developed collaboration agreements (collaboration protocol), formalizing the agreed collaboration between WIACO and the communities. Before signing the collaboration agreement, it is made sure that communities are informed about the project's intentions, activities, expectations of the communities and what they can expect from the project.

2.1.7 Corruption

The project is not and will not involve, be complicit in or inadvertently contribute to or reinforce corruption or corrupt projects. WI's anti-corruption policy can be found on its website[22].

2.1.8 Economic Impacts

Labour Rights

The project activities do not include any contracted labour, but will involve voluntary participation by community members in the restoration activities. Should the project hire any employees, the project ensures that there is no forced labour, child labour and will respect all International Labour Organization (ILO) rights.

Negative Economic Consequences and food

The economic consequence will be positive as we expect to improve the income of the communities.

The local communities will benefit from increased income through the implementation of income generating activities. These may include improvement to commodity production, which will increase in quantitative and

[22] Download here: https://www.wetlands.org/download/16282/ or see https://www.wetlands.org/about-us/our-accountability/

qualitative terms, improving market size and revenues. Examples are horticulture, oyster-farming (ostreiculture), palm oil production, etc.

Abandoned fields generate no income, but through restoration, the mangroves will contribute to increasing biodiversity in terms of quality and quantity and serve as exploitable resources for the local community and consequently improve the lives of these communities.

2.1.9 Hydrological impact

Impact on Natural Water Patterns/Flows

The project will not negatively affect the natural or pre-existing pattern of watercourses, groundwater and/or the watershed(s) such as high seasonal flow variability, flooding potential, lack of aquatic connectivity or water scarcity.

Erosion and/or Water Body Instability

The project will not directly or indirectly cause additional or excessive erosion and/or water body instability or disrupt the natural pattern of erosion.

The project activities are not likely to cause hydrological disturbances, see also the ecological leakage assessment in section 3.2.3. Overall, the project will bring back natural flow, including flooding. The hydrological impact plays a major role in the recovery of mangroves in abandoned fields. It facilitates the entry of *Rhizophora* propagules and seeds of *Avicenia* and *Langucularia* to the plots of abandoned fields. It also participates in soil leaching from abandoned fields.

2.1.10 Environmental impacts

Landscape Modification and Soil

The project does not involve the use of land and soil for production of crops or other products. Some of the income-generating activities may require land use (market gardening, active rice cultivation in the valleys, etc.), but in a sustainable and supervised manner. Mangrove land is not used for these livelihood activities. Livelihood options determined in collaboration with communities will be sustainable. Monitoring and adaptive management will ensure that any potential negative impacts will be evaded during implementation.

The project activity involves the removal of man-made dykes, which will modify the landscape, soil and hydrological conditions, restoring these areas to its natural state.

Vulnerability to Natural Disaster

The project will not be susceptible to or lead to increased vulnerability to wind, earthquakes, subsidence, landslides, erosion, flooding, drought, or other extreme climatic conditions. In fact, by restoring the sites to its natural state and re-establishing mangroves there is a major positive impact of project activities on vulnerability / natural disasters. Thus, no mitigation actions are needed, see also AFOLU Non-Permanence Risk Report

Genetic Resources

No GMOs are used by the project. As for income-generating activities, the project will be guided by clean, environmentally friendly technologies, so there are no such risks.

Use of pesticides/herbicides or other pollutants

The project will not use pesticides or herbicides or result in the release of other pollutants. There has never been use of chemical fertilizers or pesticides in these rice fields and even under the income generating activities, there are no risks in this matter.

Hazardous and Non-hazardous Waste

The project will not involve the manufacture, trade, release, and/or use of hazardous and non-hazardous chemicals and/or materials. There is virtually 0% of waste during restoration.

High Conservation Value Areas and Critical Habitats

The project zone is partially situated in Cacheu and Cantanhez National Parks which were included in the RAMSAR list since 2015 and 2011 respectively. The project zone therefore includes several HCV's, including important HCV's for communities. In section 6.1.2 and 7.1.3, the HCV's relevant to the project are described.

No negative impacts in HCV's are expected by the project.

Endangered species

Rare species or species with specific conservation significance (according to the IUCN Red List of Threatened Species) that can be found in the project zone are: the African manatee (*Trichechus senegalensis*), the hippopotamus (*Hippopotamus amphibius*) both listed as vulnerable (VU); the humpback dolphin (*Sousa teuzsii*), classified as critically endangered (CR); the bottlenose dolphin (*Tursiops truncates*), African clawless otter (*Aonyx capensis*), Nile crocodile (*Crocodylus niloticus*) and the African dwarf crocodile (*Osteolaemus tetraspis*). The critically endangered (CR) Western chimpanzee (*Pan troglodytes ssp. verus*) can be found in the subhumid forests of Cantanhez NP. The chimpanzees in Cantanhez NP are however not expected to be affected by the project activities, as the mangroves are not considered a part of the natural habitat of the species, nor are the deserted rice fields that would be eligible for restoration (Bessa et al., 2015). See section 6.1.1 for more information on the existing biodiversity conditions.

The degraded and abandoned rice fields currently hold little to no biodiversity value. Although there are a few bird species, such the black-tailed godwit and yellow wagtail, who seem to prefer rice fields and other cultivated land (Bos et al, 2006), we assume that degraded, abandoned rice fields are less attractive to these bird species as well, because the rice on which they feed has disappeared. Also, the salinization and acidification of the environment prevents any establishment of other vegetation and is unfavourable for (soil) organisms that could be a food source for these birds.

The project will aid the return of the fragile mangrove ecosystem and in doing so also support endangered species mentioned above by providing improved habitat. The project will have no negative impact on endangered species inside and offsite the project area.

2.2 Local Stakeholder Consultation

The process of identifying and analysing the stakeholders is currently ongoing: meetings with NGOs and/or institutions have started (IBAP, IUCN) and others are planned (AD, ODZH, GPC GRDR). The local stakeholders who should play an important role in the project (local administrator, CBO, village management committee, opinion leaders, village chiefs, etc.) have been informed of the meetings planned for the situation analysis. The table in Annex I provides an overview of the identified relevant stakeholders, their interests, the effect of the project on their interests and the means of involvement of these stakeholders. A list of stakeholder meetings that have been held or are planned can be found in Annex II.

Consultation meetings with the local stakeholders that are directly involved and affected in the project (e.g. local administrator, CBO, village management committee, opinion leaders, village chiefs, etc.) were performed (see Annex II). The communities where WIACO is planning restoration activities (see Figure 4, Figure 5 and Table 4 in Section 1.12), are being consulted following the engagement process described below.

Local stakeholder engagement process

Approaching the communities and stakeholders is a participatory process, in which all actors are informed and made aware of the project. To ensure adequate consultation and participation of the local stakeholders, WIACO applies the following process:

The entry point for communications with the communities are the village chiefs who represents the local government. The chief is responsible for informing all the communities about the project and initiates discussions within the community.

Engagement meetings

The chief convenes a village meeting with WIACO for which all villagers are invited. During this meeting the community members are informed about:

- The goals of the project,
- The organisations involved
- The restoration activities
- What is expected from the community:
  - The role / participation of community members in the restoration activities
  - Their consent in leaving the restoration areas to develop back into mangrove, never again convert the land back to agriculture and sustainably harvest any future natural resources in these areas (following a management plan)
- What they get in return:
  - Food for Work (i.e. in the form of financial compensation) for each field trip during implementation
  - Livelihood program

Community members involved in the restoration activities will also benefit from being involved in livelihood activities. In relation to the livelihoods program, the community members are consulted about their specific livelihood needs, and plans are developed based on this.

Additionally, discussions are held on formalising the agreed collaboration between WIACO and the communities in a collaboration protocol (PROTOCOLE VILLAGE TPNTP, see Annex III). If the community members agree on the terms, the collaboration protocol is signed.

Moreover, during stakeholder consultation land use and user rights will be clearly documented, e.g. who has access to what resources, what is and is not allowed, and who is responsible for overseeing these established agreements. Moreover, any legal or customary tenure/access rights to territories and resources, including collective and/or conflicting rights, held by local stakeholders will be clearly identified. It has to be made sure that there are no disputes over land tenure or resource access in the project sites.

Meeting minutes are taken including a signed attendance list from which a report is made. The report is shared with the village chiefs, who in turn share this with interested community members, and a copy of the report can be requested at WIACO. The reports are made in Portuguese, English and French.

Focussed follow-up meetings

After the collaboration protocol is signed, additional meetings are held on specific topics:

- Before planting starts specific meetings are held focused on the restoration activities.
- Based on the initial feedback from the communities in the first meeting, WIACO will further design and develop the livelihoods program. Follow up meetings will be organized to further address community needs and appropriate livelihood activities tailored to these needs.
- Other meetings are held with the target groups (for instance women's groups for market gardening activities).

Ongoing consultation meetings and communication

During project implementation, WIACO intends to consult with the local communities with regards to the specific project activities that are being planned or undertaken.

As far as the local actors are concerned, the management committees (community-based organisations, village, etc.) will carry the project. The local communities will have an active role in the restoration activities through the management committees created, as they are the ones making available the abandoned fields, they will be the ones to participate in breaching the dykes and they will be the ones to maintain the vigilance of the restored fields. They local communities, as well as the NGO's will respond to WIACO.

During monitoring, WIACO will monitor the restoration performance, biodiversity impacts and the socio-economic impacts of the restoration activities as well as the livelihood program. Local community members will be trained and actively participate in monitoring. Additionally, community members will be consulted on the achievements of the livelihood program, during monitoring. WIACO will communicate the monitoring results with the communities and will take into account the feedback received from the communities.

Ongoing communication with all other relevant stakeholders (including off site communities) will be through means of radio announcements, cell phone, and informal meetings.

Documentation

Detailed mission and consultation reports will constitute basic documents.

All documentation will be available upon request at the WIACO office.

Comments

All comments are welcome and duly evaluated and discussed at the meetings. Collaboration protocols will be signed and should take into account the contributions received. This information is used to update the project database.

Regular meetings with the communities will allow us to collect further feedback on the project and also the management committee will have the role of collecting all the concerns and suggestions from the communities. Subsistence activities contribute to meeting the needs of communities.

2.3 Environmental Impact

As described in section 2.1 *No Net Harm*, the project activities are expected to provide net environmental benefits.

Guinea-Bissau has Environmental Impact Assessment requirements for large-scale projects, but this project, as it deals with specific aspects related to the restoration and conservation of the environment, benefits from exemption.

2.4 AFOLU-Specific Safeguards

Local stakeholder identification process and a description of results.

See section 2.2.

Risks to local stakeholders due to project implementation and how the project will mitigate such risks.

No risks are identified regarding project implementation (see the Non-Permanence-Risk-Report)

Risks to local stakeholder resources due to project implementation and how the project will mitigate such risks, including the plans to ensure the project will not impact local stakeholder's property rights without the free, prior and informed consent.

In more than 5% of the potential project area, there exist disputes over land tenure or ownership. Additionally, there are disputes over access/use rights (or overlapping rights). However, the project implementation site selection is based on the criterium that there are no disputes over land tenure or ownership, or over access/use rights. This is confirmed as part of the community survey and confirmation by IBAP, during the site selection process (see the Non-Permanence-Risk-Report).

Describe the grievance redress procedure to resolve any conflicts which may arise between the project proponent and local stakeholders.

For grievances directly related to the project activity there is a Grievance Redress Procedure applicable.

The MoU, in which this procedure is described , is signed with the communities and has a clause to address any disputes that may arise. This information is shared with the communities during stakeholder consultations. Additionally, information on this procedure, and who to contact will be shared through radio announcements. The Grievance Redress Procedure can be found in annex IV.

3 APPLICATION OF METHODOLOGY

3.1 Title and Reference of Methodology

The Guinea-Bissau Mangrove Restoration Project is designed under the Verified Carbon Standard Version 4.0.

The project applies VM0007 REDD+ Methodology Framework (REDD-MF) version 1.6 (VM0007 REDD+ Methodology Framework (REDD+MF), v1.6 - Verra). Under this REDD Methodology Framework, the following modules and tools are applied by the project:

	Modules/Tools
Additionality	VMD0052 Demonstration of additionality of tidal wetland restoration and conservation project activities (ADD-AM), v1.0
Permanence	AFOLU Non-Permanence Risk Tool (T-BAR), v4.0
Baseline	VMD0041 Estimation of baseline carbon stock changes and greenhouse gas emissions in ARR project activities (BL-ARR), v1.1 VMD0050 Estimation of baseline carbon stock changes and greenhouse gas emissions in tidal wetland restoration and conservation project activities (BL-TW), v1.0
Carbon pool above- and belowground biomass	VMD0001 Estimation of carbon stocks in the above- and belowground biomass in live tree and non-tree pools (CP-AB), v1.1
Carbon pool soil organic carbon	VMD0004 Estimation of carbon stocks in the soil organic carbon pool (CP-S), v1.0
Leakage	VMD0043 Estimation of emissions from displacement of pre-project agricultural activities (LK-ARR), v1.0 VMD0044 Estimation of emissions from ecological leakage (LK-ECO), v1.1
Emissions	VMD0014 Estimation of emissions from fossil fuel combustion (E-FFC), v1.0 VMD0013 Estimation of greenhouse gas emissions from biomass and peat burning (E–BPB), v1.2
Project future conditions	VMD0019 Methods to Project Future Conditions, v1.0
Monitoring	VMD0045 Methods for monitoring greenhouse gas emissions and removals in ARR project activities (M-ARR), v1.1 VMD0051 Methods for monitoring carbon stock changes and greenhouse gas emissions and removals in tidal wetland restoration and conservation project activities (M-TW), v1.0
Stratification	VMD0016 Methods for stratification of the project area (X-STR), v1.2
Uncertainty	VMD0017 Estimation of uncertainty for REDD project activities (X-UNC), v2.2
Significance	CDM Tool for testing significance of GHG emissions in A/R CDM project activities (T-SIG), v1

3.2 Applicability of Methodology

As a Tidal Wetland (TW) Restoration project, this project qualifies as a combined ARR (Afforestation, Reforestation and Revegetation) and RWE (Restoration of Wetlands Ecosystems) project under the VM0007 REDD+ Methodology Framework (VM0007-MF).

The project and its activities meet each of the applicability conditions set out in the VM0007-MF and the different tools and modules applied by the project. These different applicability conditions are described below.

3.2.1 ARR Project Activities

The ARR activities implemented by the project are applicable under the VM0007-MF since:

- The project area is non-forest land;
- The project area exists out of degraded wetland;
- The ARR activities are combined with rewetting since the project area is drained;
- The project scenario does not involve the application of nitrogen fertilizers;
- The project area does not include areas already registered under the CDM or under any other GHG program (both voluntary and compliance-oriented).

3.2.2 RWE Project Activities

The RWE activities implemented by the project are applicable because:

- The tidal wetland included in the project area is degraded.
- The project area includes only abandoned (for 5 year or more) and drained rice fields on tidal wetlands;
- The project activities do not lower the water table, unless the project converts open water to tidal wetlands, or improves the hydrological connection to impounded waters;
- Changes in hydrology implemented by the project will result in the accumulation or maintenance of SOC stock;
- Hydrological connectivity of the project area with adjacent areas does not lead to a significant increase in GHG emissions outside the project area;
- Project activities does not include the burning of organic soil;
- Nitrogen fertilizer(s), such as chemical fertilizer or manure, are not applied in the project area during the project crediting period;

Furthermore, the project qualifies as a Tidal Wetland Restoration (VCS category TW) since the project activities include the following:

- Creating, restoring and managing hydrological conditions (e.g., removing tidal barriers, improving hydrological connectivity, restoring tidal flow to wetlands or lowering water levels on impounded wetlands)
- Altering sediment supply (e.g., beneficial use of dredge material or diverting river sediments to sediment-starved areas)
- Changing salinity characteristics (e.g., restoring tidal flow to tidally-restricted areas)
- Improving water quality (e.g., reducing nutrient loads leading to improved water clarity to expand seagrass meadows, recovering tidal and other hydrologic flushing and exchange or reducing nutrient residence time)
- Reintroducing native plant communities (e.g., reseeding or replanting)

3.2.3 Leakage

An Introduction

The REDD+MF requires the application of the following modules for leakage in the case of a RWE+ARR project type:

- VMD0009 Estimation of emissions from activity shifting for avoiding planned deforestation/forest degradation and avoiding planned wetland degradation (LK-ASP)
- VMD0044 Estimation of emissions from ecological leakage (LK-ECO)

In addition the Methodological Framework includes applicability conditions related to leakage.

This section first analyses the REDD+MF applicability conditions related to leakage, and then continues to assess the application of the required leakage modules.

B REDD+MF Leakage Applicability Conditions and Leakage requirements

Section 4.5.2 and section 8.3 of the REDD+MF are covered below.

REDD+MF Section 4.5.2 RWE Project Activities:

For RWE project activities, prior to the project start date, the project area must meet the following conditions (for the avoidance of leakage):

a) The area is free of any land use that could be displaced outside the project area, as demonstrated by at least one of the following, where relevant:

- The project area has been abandoned for two or more years prior to the project start date; or
- Use of the project area for commercial purposes (i.e., trade) is not profitable as a result of salinity intrusion, market forces, or other factors. In addition, timber harvesting in the baseline scenario within the project area does not occur; or
- Degradation of additional wetlands for new agricultural/aquacultural sites within the country will not occur or is prohibited by enforced law.

OR

b) The area is under a land use that could be displaced outside the project area, although in such case, baseline emissions from this land use must not be accounted for, and where degradation of additional wetlands for new agricultural/aquacultural sites within the country will not occur or is prohibited by enforced law.

OR

c) The area is under a land use that will continue at a similar or greater level of service or production during the project crediting period (e.g., reed or hay harvesting, collection of fuelwood, subsistence harvesting, commercial fishing).

The project proponent must demonstrate (a), (b) or (c) above, based on verifiable information such as laws and bylaws, management plans, annual reports, annual accounts, market studies, government studies or land use planning reports and documents.

In the project area, condition *(a)* is applicable. Rice fields are abandoned due to decreasing yields and more profitable economic activity in other forms of agriculture, outside the tidal zone. Yields from rice fields generally decreased over time due to salinisation and acidification. Thirdly, there is a trend of labour becoming scarce to continue the rice farming practice in the tidal zone.

REDD+MF Section 8.3 Leakage

Requirement: "Where, pre-project, unsustainable fuelwood collection is occurring within the project boundary, Modules BL-DFW and LK-DFW must be used to determine potential leakage."

Response: There is no fuelwood collection in the baseline, because there are no trees in the baseline scenario. The absence of trees in the baseline scenario is a site selection criterium.

Requirement: "Where leakage prevention activities include tree planting, aquacultural intensification, agricultural intensification, fertilization, fodder production, other measures to enhance cropland and/or grazing land areas, leakage management zones or a combination of these, then any significant increase in GHG emissions associated with these activities must be accounted for, unless deemed de minimis, as determined using T-SIG."

Response: The project aims to create positive social impact through livelihood activities. These are not leakage prevention activities.

Fossil fuel emissions caused by the implementation of leakage prevention activities are not accounted for, because the methodology deems those emissions insignificant.

In this section 8.3, the methodology states in general (for all project activities):

"As per the applicability conditions, leakage prevention may not include the flooding of agricultural lands (e.g., for new rice paddies) nor the creation of livestock feedlots and/or manure lagoons. Leakage prevention may also not include the drainage of peatland."

Response:

- This is an error: in the section 'Applicability conditions' this is only mentioned for REDD activities, not for other project activities like wetland restoration or ARR.
- The project does not carry out leakage prevention activities. There is no activity-shifting leakage, because the project area is abandoned in the baseline scenario. There is no land-use in the baseline scenario.
-

C Assessment of Leakage modules for RWE+ARR projects

C.1 VMD0009 Estimation of emissions from activity shifting for avoiding planned deforestation/forest degradation and avoiding planned wetland degradation (LK-ASP)

The requirement to apply module LK-ASP for RWE+ARR projects seems like an error, because there is no avoidance of planned wetland degradation applicable in the project. However, on page 32 of the REDD+MF it states again: combined RWE-ARR projects must use Module LK-ASP.

In section 4 'Applicability Conditions' of module LK-ASP it says:

"The module is applicable for estimating the leakage emissions due to activity shifting from forest lands that are legally authorized and documented to be converted to non-forest land, including activity shifting to forested wetland that is drained or degraded as a consequence of project implementation. The module is also applicable for estimating the leakage emissions due to activity shifting from non-forested wetlands that are legally authorized and documented to be converted and degraded. Under these situations, displacement of baseline activities can be controlled and measured directly by monitoring the baseline deforestation or wetland degradation agents or class of agents."

Response: Again, in this project the baseline scenario does not consist of conversion of wetlands that are legally authorized and documented to be converted and degraded. The project area is already converted and degraded, so there is no planning of conversion and degradation applicable in the baseline scenario. Furthermore, the historical conversion and degradation was not authorized and planned, but unplanned in nature.

VMD0043 Estimation of emissions from displacement of pre-project agricultural activities (LK-ARR)

Although the REDD+MF does not require the application of module LK-ARR, it is still reasonable to assess whether it is applicable to this project activity. It seems better suitable than module LK-ASP that is prescribed by the REDD+MF for the project type RWE+ARR.

Section 4 'Applicability Conditions' in LK-ARR:

- Applicability conditions set out in AR-ACM0003 must be met.
- Applicability conditions in AR-ACM003 that exclude project activities on wetlands can be disregarded in the context of this module.

The procedure is that emissions due to the displacement of pre-project agricultural activities in ARR project activities are estimated using CDM tool *Estimation of the increase in GHG emissions attributable to displacement of pre-project agricultural activities in A/R CDM project activity*.

Our conclusion is that this tool is not applicable to the project area, because there are no pre-project agricultural activities. The project area consists of abandoned rice fields.

VMD0044 Estimation of emissions from ecological leakage (LK-ECO)

Section 4 'Applicability Conditions' in LK-ECO:

This module is applicable under the following condition: Leakage caused by hydrological connectivity is avoided by project design and site selection, as set out in Section 5 of the module.

This module does not quantify ecological leakage, but instead requires the avoidance of ecological leakage through design. The requirement is:

"The project proponent must demonstrate that their project design meets these requirements through expert judgment, hydrologic modelling or monitoring of alterations of water table depth at the project area. In tidal wetland restoration projects, de-watering downstream wetlands is not expected if project areas are set sufficiently large to include areas with expected changed hydrology."

The following table specifies which types of ecological leakages emission can take place and how they are avoided:

Ecological leakage process outside project boundary	Avoidance criterion (pertaining to conditions outside the project boundary)
Lowering water table that causes increased soil carbon oxidation	Maintain wetland conditions (e.g., converting from impounded water to a wetland does not cause soil oxidation)
Lowering water table that causes increased N_2O emissions	No conversion of open water to non-seagrass wetland
Raising water table that causes increased CH_4 emissions	No conversion of non-wetland to wetland
Raising water table that causes decreased vegetation production that causes decreased new soil carbon sequestration	No causation of vegetated to non-vegetated (or poorly vegetated) conditions

The project sites are connected to a large river system, that has no barriers to the open ocean. Any water entering the newly opened rice field dykes will not come from other wetland areas, but rather from open ocean and large river systems. Breaching a dyke to an area of 10s of hectares will not alter the overall available water around that area.

3.3 Project Boundary

3.3.1 Geographical Boundary ARR+RWE Project Area

The project area identified for the implementation of restoration activities is limited to the project zone, which is in the area in and around Cacheu National Park and Cantanhez National Park and their respective *peripheriques* (Figure 11)

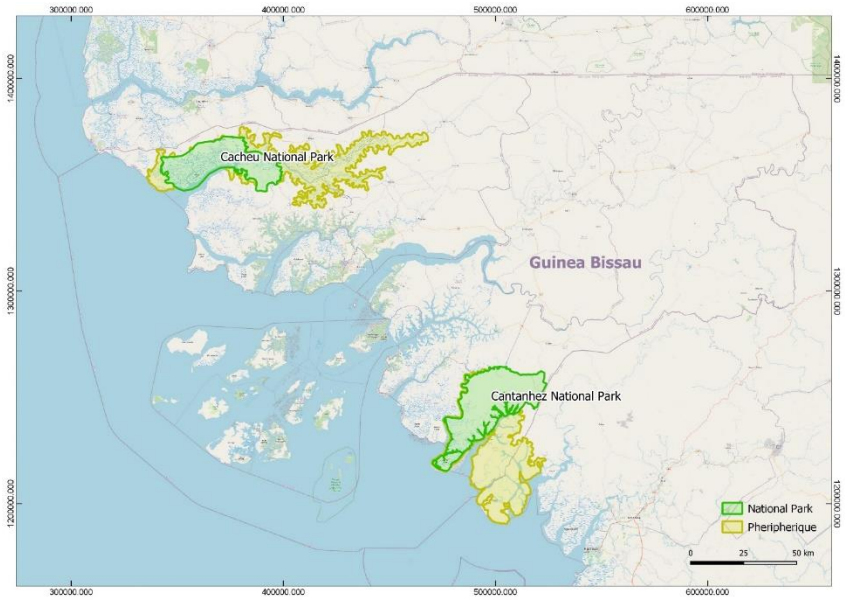


Figure 11 - Project zone: Cacheu and Cantanhez National Parks and their Peripheriques

3.3.2 Carbon Pools and Sources of GHG Emissions

The carbon pools and the GHG emission sources included in or excluded for the Guinea-Bissau Mangrove Restoration Project activity are shown in Table 5 and Table 6 below.

Table 5 - Carbon Pools and sources of GHG emissions in the Baseline Scenario

Source		Gas	Included?	Justification/Explanation
Baseline scenario	Aboveground tree biomass	CO_2	Yes	This is a mandatory pool
		CH_4	No	
		N_2O	No	
		Other	No	
	Aboveground non-tree biomass	CO_2	No	The carbon stock in this pool is conservatively excluded
		CH_4	No	
		N_2O	No	
		Other	No	
	Belowground tree biomass	CO_2	Yes	The carbon stock in this pool is calculated based on the aboveground tree biomass pool
		CH_4	No	
		N_2O	No	
		Other	No	
	Soil Carbon	CO_2	Yes	The carbon stock in this pool is included
		CH_4	No	
		N_2O	No	
		Other	No	
	Dead Wood	CO_2	No	The carbon stock in this pool is conservatively excluded
		CH_4	No	
		N_2O	No	
		Other	No	
	Harvested Wood Products	CO_2	No	The carbon stock in this pool is conservatively excluded
		CH_4	No	
		N_2O	No	
		Other	No	
	Litter	CO_2	No	The carbon stock in this pool is conservatively excluded
		CH_4	No	
		N_2O	No	
		Other	No	

Source		Gas	Included?	Justification/Explanation
	Biomass burning	CO_2	No	The carbon stock in this pool is conservatively excluded
		CH_4	No	
		N_2O	No	
		Other	No	
	Combustion of fossil fuels	CO_2	No	The carbon stock in this pool is expected to be insignificant and therefore excluded
		CH_4	No	
		N_2O	No	
		Other	No	
	Use of fertilizers	CO_2	No	The carbon stock in this pool is conservatively excluded
		CH_4	No	
		N_2O	No	
		Other	No	

Table 6 - Carbon Pools and sources of GHG emissions in the Project Scenario

Source		Gas	Included?	Justification/Explanation
Project scenario	Aboveground tree biomass	CO_2	Yes	This is a mandatory pool
		CH_4	No	
		N_2O	No	
		Other	No	
	Aboveground non-tree biomass	CO_2	No	The carbon stock in this pool is conservatively excluded
		CH_4	No	
		N_2O	No	
		Other	No	
	Belowground tree biomass	CO_2	Yes	The carbon stock in this pool is calculated based on the aboveground tree biomass pool
		CH_4	No	
		N_2O	No	
		Other	No	
	Soil Carbon	CO_2	Yes	The carbon stock in this pool is included
		CH_4	No	
		N_2O	No	
		Other	No	

Source		Gas	Included?	Justification/Explanation
	Dead Wood	CO_2	No	The carbon stock in this pool is conservatively excluded
		CH_4	No	
		N_2O	No	
		Other	No	
	Harvested Wood Products	CO_2	No	The carbon stock in this pool is conservatively excluded
		CH4	No	
		N2O	No	
		Other	No	
	Litter	CO2	No	The carbon stock in this pool is conservatively excluded
		CH4	No	
		N2O	No	
		Other	No	
	Biomass burning	CO2	No	The carbon stock in this pool is conservatively excluded
		CH4	No	
		N2O	No	
		Other	No	
	Combustion of fossil fuels	CO2	No	The carbon stock in this pool is expected to be insignificant and therefore excluded
		CH4	No	
		N2O	No	
		Other	No	
	Use of fertilizers	CO2	No	The carbon stock in this pool is conservatively excluded
		CH4	No	
		N2O	No	
		Other	No	

3.4 Baseline Scenario

Based on methodological module VMD0050 BL-TW, four driving factors for the baseline scenario must be considered:

- Initial land use and development patterns
- Initial infrastructure that impedes natural tidal hydrology
- Natural plant succession for the physiographic region of the project

- Climate variables as likely drivers of changes in tidal hydrology within the 100-year timeframe of the project, influencing sea level rise, precipitation and associated freshwater delivery

The initial land use of the project area in the baseline consists of abandoned rice fields, which are surrounded by dykes. The dykes prevent the tidal flows to reach the fields and regeneration of mangrove is prohibited. This is the initial infrastructure that impedes natural tidal hydrology. The land is not suitable for other type of vegetation and natural plant succession does not take place. It is expected that the dykes remain intact in the baseline scenario for the next 50 years.

Some selected sites have breached dykes, but are not showing any signs of restoration of mangroves. This is caused by the extreme hydrodynamics, that are caused by the low number of breaches. Dykes, when breached naturally, are breached in the weakest spot. With rising tide, water washes in through a relatively small opening, eroding mud and propagules. This limits possibilities for natural regeneration.

The rice fields are abandoned due to migration to cities and market developments that favour cashew cultivation at higher elevation.

3.4.1 Notes on Sea Level Rise (SLR) long-term impact on restored mangroves in Guinea-Bissau

Sasmito et al (2015)[23] find that the geomorphological setting influences the vulnerability of mangroves to SLR. Fringe mangroves are more vulnerable to SLR than basin mangroves:

"We find that Surface Accretion Rates (SAR) in both basin and fringe mangroves can cope with low SLR scenario (Representative Concentration Pathway (RCP) 2.6) throughout the 100 years projection period. However, SAR can only keep pace with high SLR scenario (RCP 8.5) up to year 2070 and 2055 in basin and fringe mangrove settings respectively. These were associated with potential sediment accumulation of 41 cm and 29 cm respectively from the baseline. Mangrove degradation promoted lowering trends of SEC (Surface Elevation Change), while mangrove management such as rehabilitation practice stimulated positive trends of SEC."

This is confirmed by Saintilan et al. (2020)[24]:

"Geomorphic setting will also influence vulnerability to submergence, because allochthonous sediment contributions in tide- and river-dominated estuaries may provide an elevation subsidy not available in environments receiving low sediment supply, such as coral reefs. In this context, sediment retention in catchments affected by water resource development (i.e., trapped behind dams) and local sediment controls may decrease mangrove resilience to relative sea level rise (RSLR) in river estuaries."

The project area is part of a delta system. The sites are not directly bordering the sea. The river brings sediments into the delta. The suspended sediment concentration in the delta is not homogeneous, but differs depending on proximity of the area to the main river arm, amongst others. In general, the expectation for the area is that river sediments allow for vertical elevation of the surface level in line with future SLR and therefore enabling the survival of the mangrove ecosystem. Since it is not a fringe mangrove, it will be better protected against SLR and coastal erosion. SLR is even expected to have a positive impact on soil carbon stocks, within certain limits:

[23] Sasmito, D., Murdiyarso, D., Friess, D.A., Kurnianto, S. (2015). Can mangroves keep pace with contemporary sea level rise? *Wetlands Ecology and Management, 23 (5)*

[24] Saintilan, N., Khan, N., Ashe, E., Kelleway, J., Rogers, K., Woodroffe, C. & Horton, B. (2020). Thresholds of mangrove survival under rapid sea level rise. *Science, 368 (6495), 1118-1121.*

"[mangroves] support among the highest rates of carbon burial of all ecosystems (6), and a growing body of evidence suggests that this efficiency is enhanced by RSLR."[25]

Mitigation of the SLR impact is aimed for by regenerating mangroves, which is expected to stimulate positive Surface Elevation Change (SEC), according to Sasmito (2015). The expansion of root biomass has a positive impact on SEC.

"(…) mangrove management efforts such as ecosystem rehabilitation contributed to gains in elevation by up to 6.19 mm year-1 through belowground expansion (SSC [Sub-Surface Change]), and surface accretion (SAR) by 1.38 and 4.82 mm year-1 respectively."

As pointed out by Sasmito et al. there is limit to the capacity of mangrove ecosystems to adapt to SLR. With the help of a tool developed by the Integrated Data Climate Centre of the University of Hamburg[26] we made a projection of SLR for the Guinea-Bissau coastal region until 2100, based on IPCC-AR5 scenarios RCP4.5 and RCP8.5, which represent the medium and high SLR scenario. The results are presented in the graphs and pictures below.

Saintilan et al (2020) studied the historical response of mangroves to high rates of relative SLR, based on paleorecords, and found that:

"(…) it [is] very likely (>90% probability) that mangroves were unable to initiate sustained accretion when RSLR rates exceeded 6.1 millimetres per year. This threshold is likely to be surpassed on tropical coastlines within 30 years under high-emissions scenarios."

In the RCP4.5 scenario, there is a more or less linear trend of about 50 cm SLR in 93 years, which amounts to an average SLR of 5.4 mm/year (see Figure 12, Figure 13, and Figure 14). This is within the limit of 6.1 mm/year for mangrove survival. In the RCP8.5 scenario, the trend is about 73 cm SLR in 93 years, which is on average 7.8 mm/year. This is clearly beyond the limit of 6.1 mm/year. We can conclude that in the high emissions scenario RCP8.5 the long-term survival of mangroves will be in danger. Based on the studies by Saintilan et al. (2020) and Sasmito et al. (2015) these areas will be in danger in 30 to 50 years from now (i.e. 2050 to 2070). In the low and medium level IPCC-AR5 scenarios, it is expected that the mangroves can cope with SLR, especially given the geomorphological conditions of the project area and due to the fact that we are dealing with rehabilitation of mangroves.

"Where a deficit commences between vertical accretion and RSLR, time to submergence will be a function of the position of the mangrove within the tidal frame. In settings of low tidal range, mangroves are more likely to be situated at elevations close to the threshold of submergence from the outset. In settings of high tidal range, mangroves are more likely to be situated at elevations well above this threshold and tolerate a deficit between the rates of accretion and RSLR for decades to centuries (5)."

[25] Donato et al. (2011) and Rogers et al. (2019) in Saintilan et al. (2020)

[26] https://www.cen.uni-hamburg.de/en/icdc/data/ocean/ar5-slr.html

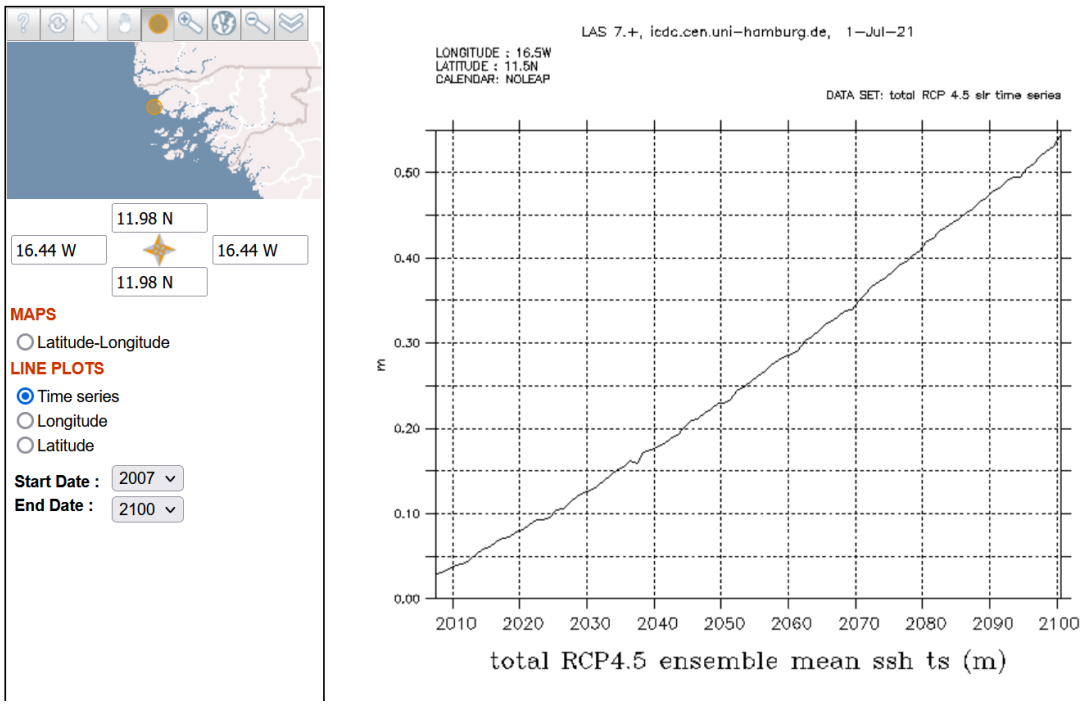


Figure 12: Modelled sea level rise in Guinea-Bissau between 2010 and 2100, under the RCP 4.5 scenario

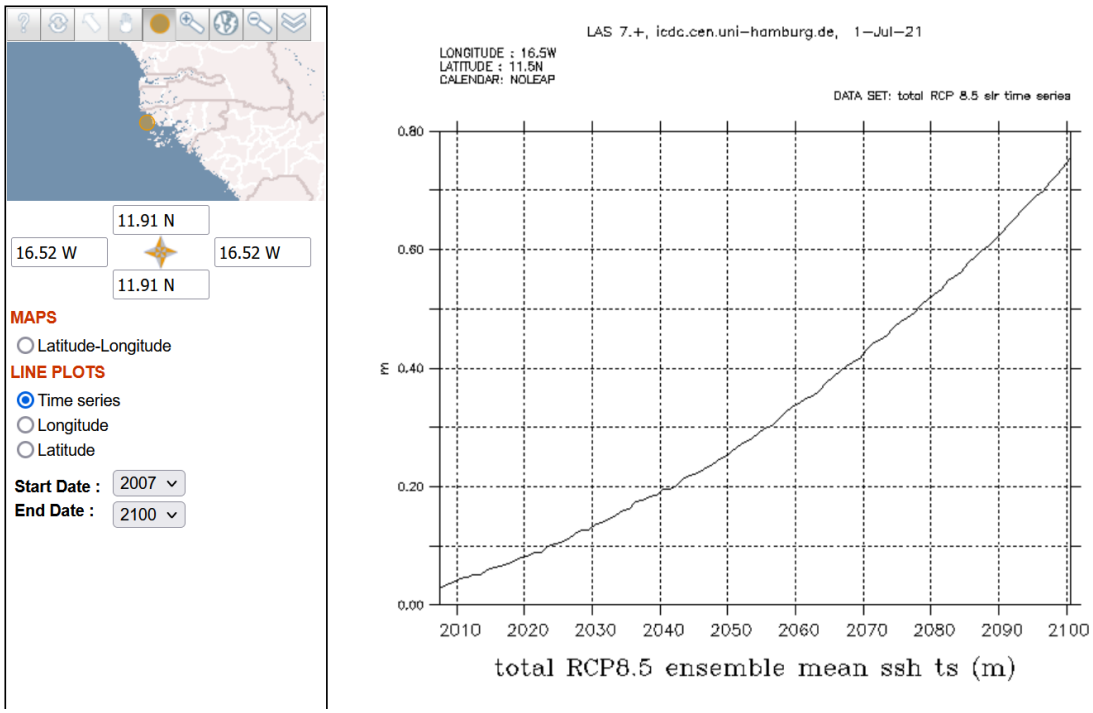


Figure 13: Modelled sea level rise in Guinea-Bissau between 2010 and 2100, under the RCP 8.5 scenario

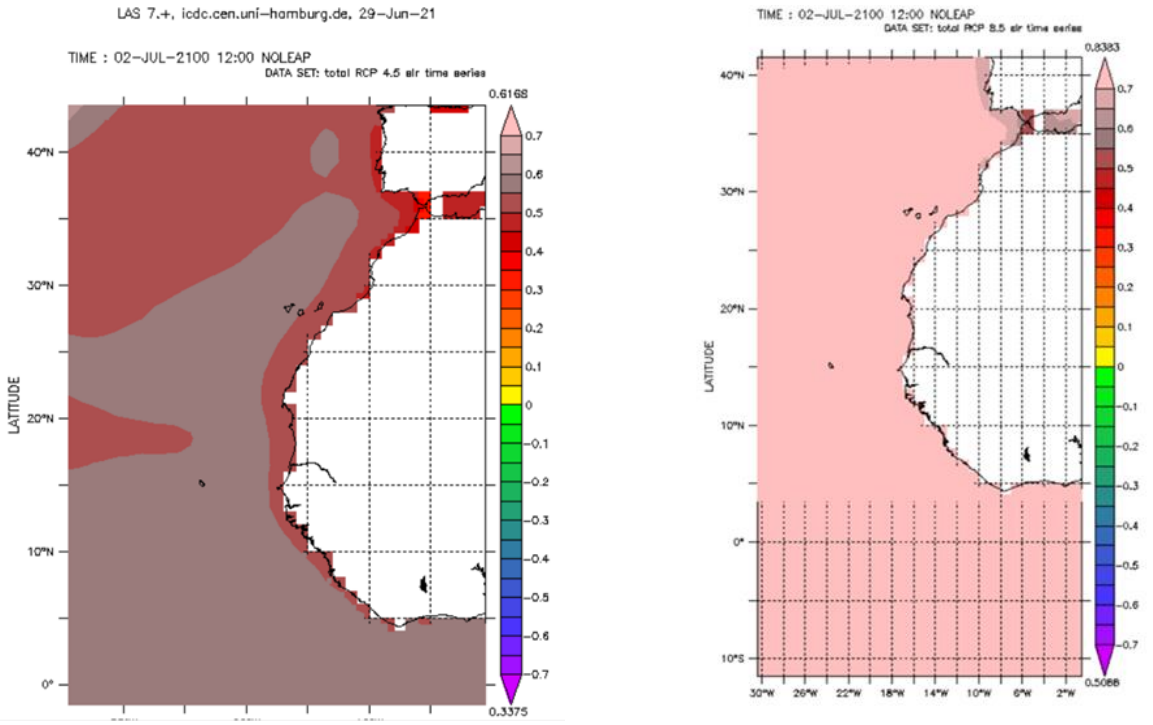


Figure 14: Modelled/projected sea level in West Africa in 2100 under the RCP 4.5 scenario (left) and the RCP 8.5 scenario (right)

3.5 Additionality

The following module has been applied:

Demonstration of additionality of tidal wetland restoration and conservation project activities (ADD-AM)

<u>Step 1 Regulatory Surplus</u>

The methodology refers for this step to the latest requirements provided in the VCS Methodology Requirements 4.0, which is presented in section 3.5.3:

"The project shall not be mandated by any law, statute or other regulatory framework, or for UNFCCC non-Annex I countries, any systematically enforced law, statute or other regulatory framework(..)."

Guinea-Bissau is a non-Annex I country and the requirement for regulatory surplus is that the project is not mandated by existing enforced laws, statutes and regulatory frameworks. If there are laws etc. that require wetland restoration in the project area, but if this is not actually enforced, the project still meets the condition of regulatory surplus.

<u>Review of the Guinea-Bissau Strategy and National Action Plan for Biodiversity 2015 – 2020.</u>

The plan presents the existing policies and strategies related to biodiversity, including for mangroves.

The Law of Environmental Evaluation (Law no. 10/2010, of September 24) has as one of its objectives: Conservation and recovery of the habitat of the migratory fauna and of their corridors. This is a general objective and it is not necessarily applicable to restoration of mangroves. It is not translated and operationalized in an instrument for the restoration of mangroves.

Since 2014, the General Direction of the Durable Development, held under the State's General Office of Environment, is amongst others responsible for the task: "To participate in the elaboration of policies and strategies of sensitive zones conservation and of recovery of degraded zones"

The Institute of the Biodiversity and Protected Areas (IBAP) was created by the Decree 2/2005 and published in Official Bulletin no. 11 of March 14, 2005. Its mandate consists essentially in recommending, coordinating and running the policies and actions concerning the biodiversity and the protected areas in the whole extension of the national territory. This institute is, in consequence, responsible for the management of the parks and for the management and monitoring of the principal values of the biodiversity (species and threatened habitats) in Guinea-Bissau. This includes the two national parks in which the project operates.

Regeneration of biodiversity is part of the long-term vision of the Guinea-Bissau Strategy and National Action Plan for Biodiversity 2015 – 2020: "Up to 2025 Guinea-Bissau will be a model of sustainable development, whose biodiversity will be preserved and regenerated to maintain in a durable way the potential of value creation of its precious and its renewed resources, offering services to the local communities, to the country and the whole subregion group and contributing significantly to the great environmental balances of the planet."

This is further highlighted in the 2nd national priority of in total 6 priorities: "To restore areas and degraded ecosystems and improve the productivity of the lands and their durability through the fight against the burning, the coastal erosion and water, the salinization and acidification of the soils, the management of the superficial and underground waters". (p.109)

The following goals are relevant in this context:

Goal 3: "by the year 2018, the country will have a diagnosis and an updated and available inventory on incentives and harmful subsidies to the biodiversity and the country will elaborate an action plan that seeks correcting, reducing or eliminating these negative incentives and promoting the positive ones for the conservation and sustainable use of the biodiversity and the ecosystems services." (p.111)

Goal 5: "By the year 2020, to reduce more than half the degradation and fragmentation of the habitats and ecosystems, mainly, forests and more sensitive ecosystems, provoked by illegal activities (…).

To reduce the degradation and the fragmentation of the habitats and of the forest and other ecosystems equally sensitive, efforts should be adjusted in several perspective, namely i) in the accomplishment of a national inventory of the flora, fauna, orchards of perennial cultures of revenue and of community forests; ii) in the establishment of a mentor plan of the forest planning and Ecological agriculture; iii) in the restoration of the ecosystems and degraded habitats of the wild fauna; (…)" (p.112)

Goal 10: "By the year 2020, to identify the multiple anthropogenetic pressures on the mangroves, mud and sand banks and, moreover, marine and coastal ecosystems affected by the climate change or oceanic acidification and to establish strategies and programs so that their integrity and operation are maintained.

The islands of the country are from the small dimensions and almost exclusively of sedimentary origin; therefore, they are exposed to the climate change phenomenon. With the progress of the erosion and the ascent of the medium level of the sea, the disappearance and/or dislocation of some islanders and more exposed sandbanks has been verified. In this context, it urges to delineate strategies and to take measures that seek: i) to reinforce the adaptation capacities and attenuation and to reduce the vulnerability of the sea

and coastal ecosystems for the climate change effects; ii) to identify opportunities for the obtaining of derived benefits of mitigation and adaptation mechanisms in favor of the biological diversity, REDD, PSA, carbon taxes, etc.; iii) to establish mechanisms of coordenation and of united work to assure the reciprocal coherence between the planning instruments and the derived actions of the biodiversity conservation policies and of fighting against the climage changes." (p.117/118)

Goal 15: "By the year 2020, the resilience of ecosystems and the contribution of the biodiversity for reservations of carbon will have been increased through conservation actions and recovery, through the recovery of at least 15% of the most sensitive and degraded forest ecosystems, thus contributing to the mitigation and adaptation to the climate change and to combate the disertification."

This goal focuses on natural regeneration of small forest gaps, better fire control and planting of (non-mangrove) trees in larger degraded areas. For mangroves the following applies:

"In the last decades, a growing degradation of mangroves vegetation has been verified in many places of the country. Degraded mangroves areas should be identified and they should be studied the appropriate measures with view to its regeneration. The "rice field", cultivation sites of the rice in the mangroves soils, should be identified and *maintained* in equal way; therefore, they allow reducing the discount pressure on the terrestrial forest vegetation. In the requalified mangroves areas, youth plants of the present species in those areas are already being replanted."

Under this goal, there is also attention for the role carbon markets:

"As it is known, the sustainable management of the forest resources is considered an alternative to the carbon market. In the ambit of the mitigation mechanisms and fight to the climate change effects, the regeneration of degraded forest vegetation that allows the verifiable fixing of carbon or the reduction of CO2 emissions can be financing object, through projects submitted, for instance, to BioCarbon Fund of the World Bank (with the objective of reducing the CO2 emissions and, simultaneously, to promote the biodiversity and reduce the poverty) or through the REDD mechanism (Reducing Emissions from Deforestation and Forest Degradation in Developing Countries) of the United Nations. This action is indispensable to invert the short/medium period the situation of degradation where Guinean forests is found." (p.122)

Conclusion regarding the Strategy and National Action Plan for Biodiversity: restoration of forests and to some extent mangroves is included as a goal. Reference is also made to carbon finance instruments for conservation and regeneration of forests.

Expert meeting

A meeting was convened with experts from IBAP and IUCN *in April 2021* to discuss the legal context of mangrove restoration in Guinea-Bissau[27]. The following conclusions and observations were made in the meeting:

1. Restoration of mangroves is not an obligation by law or a regulatory framework. However, the size of the degraded area at the national level and its associated economic costs, constitutes a real argument for the mandatory restoration initiatives
2. Restoration of mangroves takes place in Guinea-Bissau, but it is a matter of individual initiatives and projects, not through a nationally coordinated approach yet. Restoration and rehabilitation focuses on degraded mangrove areas, based on a landscape approach.
3. IBAP is planning to conduct a study on mangrove restoration opportunities at a national level. AAAC (Autoridade de Avliação Ambiental Competente) intends to carry out a coastal zone planning plan within the framework of the PRISE project financed by the Fundação Mava.

[27] See document: '210416 Meeting Notes on Laws and regulations for mangrove restoration in Guinea-Bissau_updated'

4. The government aims to have a National Mangrove Strategy by 2023 through the project 'Arroz & Mangal' with GEF/IBAP/IUCN and is hoping on contributions of any interested organisations.
5. There are plans to launch a consultation for a mangrove law in 2022. A mangrove law was already discussed in 2015 and 2016, but this was not successfully completed because political and administrative momentum was lost, and also due to the lack of clarity about the mangrove land planning and its connection with other domains, such as the public maritime domain, the areas of port expansion and coastal cities, agricultural domain, etc.
6. There is an intention to work towards a more coordinated approach of mangrove restoration through the 'Plataforma nacional sobre os paisagens de mangal'. The platform serves to exchange experiences on mangrove landscapes conservation and restoration. A first meeting has already been convened, with 9 participating institutions and projects. A draft proposal of legal status has been formulated and will be presented to members at the next meeting (probably in May).
7. The Abidjan Convention include a protocol with a mangrove charter; this will need to be incorporated in national laws of the member countries. This protocol has not yet been ratified by Guinea-Bissau. Ratification is one of the activities of the Petroleum and Gas project, financed by the Fundação Mava.
8. The following observations were made regarding mangrove protection and restoration outside protected areas:
    a. There is no legal instrument for protecting areas outside the Protected Areas system.
    b. Ricefields are more and more abandoned due to a combination of factors: irregularity in rainfall, sea-level rise, salinization and the cashew marketing campaign. These factors lead to the abandonment of previously cultivated areas and, as a consequence, the conversion of new areas, especially in the more humid regions.
    c. It requires a dynamic approach, incorporating community interests and environmental education.

Overall conclusion: There are strategies and ambitions in Guinea-Bissau to restore degraded mangrove areas and this is still very much in development. However, the restoration of mangrove is not mandated by law of a regulatory framework. The project meets the criteria of regulatory surplus.

Step 2: Positive List

Under this step the project must demonstrate that it meets all of the applicability conditions set out in Section 4.5 of VCS methodology VM0007 REDD+ Methodology Framework, and in so doing, it is deemed as complying with the positive list. As described in section 3.2 of this PD, the project meets these applicability conditions. The project is deemed additional.

3.6 Methodology Deviations

No methodology deviations are made.

4 QUANTIFICATION OF GHG EMISSION REDUCTIONS AND REMOVALS

For this project the quantification of the GHG removals by the project is based on an ex-ante estimation of the total net carbon impact of the project during a period of 79 years after project implementation.

Following VM0007-MF, the total net greenhouse gas removals of the project activity in the year 79 is calculated as follows:

$$NGR_{PROJ} = \Delta C_{WPS} - \Delta C_{BSL} - \Delta C_{LK} \quad (1)$$

Where:

NGR_{PROJ}	Total net GHG removals of the project activity up to year 79; tCO_2e
ΔC_{WPS}	Net GHG removals in the project scenario up to year 79; tCO_2e
ΔC_{BSL}	Net GHG removals in the baseline scenario up to year 79; tCO_2e
ΔC_{LK}	Net GHG emissions due to leakage from the project activity up to year 79; tCO_2e

As described in paragraph 0, three carbon pools and sources are included for the determination of the net GHG removals of the project, namely:

1. Above- and Belowground mangrove tree biomass (TREE)
2. Soil Organic Carbon (SOC)

4.1 Baseline Emissions

VM0007-MF prescribes that the GHG emissions and removals in the baseline scenario (or without-project scenario) for the selected carbon pools are calculated as follows:

$$\Delta C_{BSL,t} = \sum_{i=1}^{M} (\Delta C_{TREE\_BSL,i,t} + \Delta C_{SOC\_BSL,i,t}) * A_{PROJECT,i,t} \quad (1)$$

Where:

$\Delta C_{BSL,t}$	Baseline net GHG removals by sinks in year *t*; tCO_2e
$\Delta C_{TREE\_BSL,i,t}$	Change in carbon stock in baseline tree biomass within the project boundary in stratum *i* in year *t*, as estimated in the tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"; $tCO_2e\ ha^{-1}$
$\Delta C_{SOC\_BSL,i,t}$	Change in carbon stock in baseline tidal wetland SOC pool within the project boundary in stratum *i* in year *t*, as estimated in the VCS module VMD0050; $tCO_2e\ ha^{-1}$
$A_{PROJECT,i,t}$	Area of project in stratum *i* in year *t*; ha
i	1, 2, 3, … *M* project strata
t	1, 2, 3, … t^* years elapsed since the projected start of the RWE-ARR project activity

4.1.1 Above- and belowground mangrove tree biomass

For the estimation of the baseline carbon stock and change in baseline carbon stock in the above and belowground tree (mangrove) biomass in the project area, the VCS Module VMD0041 "Estimation of baseline carbon stock changes and greenhouse gas emissions in ARR project activities (BL-ARR)" is used together with the CDM ARR methodology AR-ACM0003 and its methodological tool AR-TOOL14 for the "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities" (v4.2).

Following AR-TOOL14, the carbon stored in above- and belowground mangrove tree biomass in the baseline are accounted to be zero since all of the following conditions are met:

- The pre-project trees are neither harvested, nor cleared, nor removed throughout the crediting period of the project activity;
- The pre-project trees do not suffer mortality because of competition from trees planted in the project, or damage because of implementation of the project activity, at any time during the crediting period of the project activity;
- The pre-project trees are not inventoried along with the project trees in monitoring of carbon stocks but their continued existence, consistent with the baseline scenario, is monitored throughout the crediting period of the project activity.

Furthermore the change in baseline carbon stock in the mangrove trees within the project boundary is accounted as zero because the following indicators apply for the selected rice fields within the project area:

- Observed reduction in topsoil depth (e.g. as shown by root exposure, presence of pedestals, exposed sub-soil horizons); Presence of gully, sheet or rill erosion; or landslides, or other forms of mass-movement erosion;
- Land comprises of bare sand dunes, or other bare lands;
- Land contains contaminated soils, mine spoils, or highly alkaline or saline soils;

So the estimation of the baseline carbon stock in mangrove tree biomass within the project boundary in year 0 (C_{TREE_BSL,i,t_0}) is **0 tCO_2e ha^{-1}**, and the ex-ante estimation of the baseline carbon stock in year 79 ($C_{TREE\_BSL,i,t_{79}}$) is also **0 tCO_2e ha^{-1}.** Therefore the change in carbon stock in baseline tree biomass within the project boundary over the project period of 79 years is estimated to be:

$$\Delta C_{TREE\_BSL,i,t_{79}} = C_{TREE\_BSL,i,t_{79}} - C_{TREE\_BSL,i,t_0} = 0\ tCO_2e - 0\ tCO_2e = \mathbf{0\ tCO_2e\ ha^{-1}}.$$

4.1.2 Soil Organic Carbon

For the estimation of the baseline carbon stock changes in Soil Organic Carbon (SOC) in the project area, the procedure described in VCS module VMD0050 "Estimation of Baseline Carbon Stock Changes and Greenhouse Gas Emissions in Tidal Wetland Restoration and Conservation Project Activities (BL-TW)" is followed.

VMD0050 allows the use of peer-reviewed published data to generate SOC values as long as the data is derived from the same or similar region as the project area.

A study done by Andreetta et al. in 2016[28] reported a site specific SOC value for a soil depth of 0-80 cm in abandoned rice fields in Cacheu National Park of 36.85 tC ha^{-1} after 15 – 20 years of abandonment. Using the default C/CO2 conversion factor, this results in a SOC stock for abandoned rice fields of **135.1 tCO2 ha^{-1}**.

[28] Andreetta, Huertas, Lotti and Cerise (2016) Land use changes affecting soil organic carbon storage along a mangrove swamp rice chronosequence in the Cacheu and Oio regions (northern Guinea-Bissau). *Agriculture Ecosystems & Environment, 216.*

Since the residual SOC stock might further decrease in the baseline scenario, the carbon stock changes in the Soil Organic Carbon in the baseline is conservatively assumed to be stable, and therefore accounted as **0 tCO_2e ha^{-1}**.

$$\Delta C_{SOC\_BSL,i,t_{79}} = C_{SOC\_BSL,i,t_{79}} - C_{SOC\_BSL,i,t_0} = 135.1\ tCO_2e - 135.1\ tCO_2e = \mathbf{0\ tCO_2e\ ha^{-1}}.$$

4.1.3 Sum of baseline carbon stock change in all pools

With a total project area of 2,500 ha, the estimation of the baseline carbon stock changes are calculated as follows:

$$\Delta C_{BSL,t} = \sum_{i=1}^{M} (\Delta C_{TREE\_BSL,i,t} + \Delta C_{SOC\_BSL,i,t}) * A_{PROJECT,i,t}$$

$$\Delta C_{BSL,t} = \sum_{i=1}^{M} (0 + 0) * 2500 = \mathbf{0\ tCO_2e.}$$

4.2 Project Emissions

Following VM0007-MF, the project GHG emissions and removals for the selected carbon pools are calculated as follows:

$$\Delta C_{PROJ,t} = \sum_{i=1}^{M} (\Delta C_{TREE\_PROJ,i,t} + \Delta C_{SOC\_PROJ,i,t}) * A_{PROJECT,i,t} \quad (1)$$

Where:

$\Delta C_{PROJ,t}$ Project net GHG removals by sinks in year *t*; tCO_2e

$\Delta C_{TREE\_PROJ,i,t}$	Change in carbon stock in project tree biomass within the project boundary in stratum *i* in year *t*, as estimated in the tool "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities"; $tCO_2e\ ha^{-1}$
$\Delta C_{SOC\_PROJ,i,t}$	Change in carbon stock in project tidal wetland SOC pool within the project boundary in stratum *i* in year *t*, as estimated in the VCS module VMD0050; $tCO_2e\ ha^{-1}$
$A_{PROJECT,i,t}$	Area of project in stratum *i* in year *t*; ha
i	1, 2, 3, … *M* project strata
t	1, 2, 3, … t^* years elapsed since the projected start of the RWE-ARR project activity

4.2.1 Above- and belowground mangrove tree biomass

For the determination of the change in project carbon stock in the above and belowground tree (mangrove) biomass in the project area, the VCS Module VMD0045 "Methods for monitoring greenhouse gas emissions and removals in ARR project activities (M-ARR)" is used together with the CDM ARR methodology AR-ACM0003 and its methodological tool AR-TOOL14 for the "Estimation of carbon stocks and change in carbon stocks of trees and shrubs in A/R CDM project activities" (v4.2).
For these calculations, carbon stock in mangrove tree biomass is estimated as follows:

$$C_{TREE\_PROJ,i,t} = \frac{44}{12} * CF_{TREE} * (AGB_{FOREST} + BGB_{FOREST}) \quad (1)$$

and

$$BGB_{FOREST} = AGB_{FOREST} * (1 + R_{TREE}) \quad (1)$$

Where:

$C_{TREE\_PROJ,i,t}$	Carbon stock in project tree biomass in stratum *i* in year *t*; tCO_2e
CF_{TREE}	Carbon fraction of tree biomass; tC $(t.d.m.)^{-1}$
	The default value of 0.47 tC $(t.d.m.)^{-1}$ is used.
AGB_{FOREST}	Mean above-ground biomass in mangrove forest in the project; t d.m. ha^{-1}
BGB_{FOREST}	Mean below-ground biomass in mangrove forest in the project; t d.m. ha^{-1}
R_{TREE}	Root-shoot ratio for the mangrove trees in the project area; dimensionless

Since the project aims to convert the abandoned and bare rice fields into restored mangrove forests, the ex-ante estimation of the change in carbon stock in the above and belowground mangrove biomass in the with-project scenario is based on the scenario of full recovery of mangrove vegetation from nil, or no mangrove vegetation, in the baseline to mature mangrove forest after successful project implementation.

The most site-specific values for tree biomass in mature mangrove forest was found in a mangrove study done in 2013-2014 which reported an average AGB of 51.5 t.d.m. ha^{-1} with an average root-shoot ratio of 0.61, measured on 72 inventory plots (20m in diameter) in mature mangrove forests in both Cacheu and Cantanhez National Parks (for trees with DBH >= 5cm).[29]

Using the default carbon fraction for Guinea-Bissau of 0.47, as given in the Guinea-Bissau's Forest Reference Emission Level (FREL)[30], this results in a mean carbon stock in the above and belowground mangrove biomass in mature mangrove forest of 142.9 tCO_2e ha^{-1}.

Using these measurements, the change in carbon stock in the project tree biomass within the project boundary over the project period of 79 years is estimated to be:

$\Delta C_{TREE\_BSL,i,t_{79}} = C_{TREE\_PROJ,i,t_{79}} - C_{TREE\_BSL,i,t_0}$ = 142.9 tCO_2e - 0 tCO_2e = **142.9 tCO_2e ha^{-1}**.

For the calculation of the annual project carbon stock change in tree biomass a linear growth over the project period of 79 years is applied.

4.2.2 Soil Organic Carbon

Andreetta et al. in 2016 reported a site specific SOC value in mangroves soils (depth of 0-80 cm) in Cacheu National Park of 132.33 tC ha^{-1}. Using the default C/CO2 conversion factor, this results in a SOC stock for mature mangroves of **485.2 tCO2 ha^{-1}**.

The change in SOC stock under the project scenario is calculated as follows:

$\Delta C_{SOC\_PROJ,i,t_{79}} = C_{SOC\_PROJ,i,t_{79}} - C_{SOC\_PROJ,i,t_0}$ = 485.2 tCO_2e – 135.1 tCO_2e = **350.1 tCO_2e ha^{-1}**.

For the calculation of the annual project carbon stock change in SOC a linear growth over the project period of 79 years is applied.

[29] Vasconcelos et al. 2014; Can blue carbon contribute to clean development in West Africa? The case of Guinea-Bissau

[30] Guinea-Bissau's FREL 2019; Proposed Forest Reference Emission Level For The National System Of Protected Areas Of Guinea-Bissau

4.2.3 Sum of project carbon stock change in all pools

With a total project area of 2,500 ha, the estimation of the baseline carbon stock changes in the final year, year 79, are calculated as follows:

$$\Delta C_{BSL,t} = \sum_{i=1}^{M} (\Delta C_{TREE\_PROJ,i,t} + \Delta C_{SOC\_PROJ,i,t}) * A_{PROJECT,i,t}$$

$\Delta C_{BSL,t} = \sum_{i=1}^{M} (142.9 + 350.1) * 2500$ = 1,232,394 tCO2e.

The net result for the project over the project period of 79 years is anticipated to be slightly below the amount calculated here, since project implementation will happen incrementally, and that the full area of 2,500 hectares will not be fully restored as of year one. As indicated in paragraph 4.4, the project starts with the restoration of 500 hectares in year 1, followed by the remaining 2,000 hectares in years 2 and 3.

4.3 Leakage

Leakage is accounted to be **0 tCO_2e** (see section 3.2.3).

4.4 Net GHG Emission Reductions and Removals

The ex-ante calculation (estimate) of baseline emissions/removals, project emissions/removals, leakage emissions and net GHG emission reductions and removals is provided in Table 7.

Table 7: Net GHG emission reductions and removals

Year	Estimated baseline emissions or removals ($tCO_2e\ ha^{-1}$)	Estimated project emissions or removals ($tCO_2e\ ha^{-1}$)	Estimated leakage emissions ($tCO_2e\ ha^{-1}$)	Project Area (ha)	Estimated net GHG emission reductions or removals (tCO_2e)
Year 1	-	6	-	500	3,120
Year 2	-	12	-	1,500	12,480
Year 3	-	19	-	2,500	28,080
Year 4	-	25	-	2,500	43,680
Year 5	-	31	-	2,500	59,280
Year 6	-	37	-	2,500	74,880
Year 7	-	44	-	2,500	90,480
Year 8	-	50	-	2,500	106,079
Year 9	-	56	-	2,500	121,679
Year 10	-	62	-	2,500	137,279

~					
Year 79	-	493	-	2,500	1,213,674
Total	**-**	**493**	**-**	**2,500**	**1,213,674**
Total ER's after the subtraction of the Risk Buffer of 10%					**1,092,307**

5 CARBON MONITORING

5.1 Introduction

This section presents a high-level outline of the Monitoring Plan for carbon. A detailed monitoring approach will be developed in 2022.

5.2 Verification of project implementation

To rehabilitate mangrove vegetation inside the project area, the project is deploying two different project activities:

1. Restore hydrology through the breaching of (outer) dykes and digging of channels (if required)
2. Promote regeneration of mangrove through mangrove tree planting (if needed)

During the implementation phase of the project (2021-2023) the project will provide an annual Project Implementation Report describing the activities and interventions done by the project over the specific year.

5.3 Monitoring change in above- and belowground mangrove tree biomass

To estimate the carbon stock change in the above- and belowground mangrove tree biomass in the project area, the project uses a random sampling method combining both remote sensing and ground-based data. Under this monitoring method, random plots are defined and monitored over time for the project duration. Recorded data include tree species, tree height, diameter at breast height, tree density and mangrove cover. Wood density will be derived from data available in published literature (e.g. DRYAD Global Wood Density Database[31]). Mangrove tree biomass and carbon content (above and below ground) will be estimated using aforementioned data and allometric equations from literature.

The annual mapping of mangrove forest cover in the project area will be done in accordance with the IPCC Good Practice Guidance for Land Use, Land-Use Change and Forestry (IPCC GPG-LULUCF 2003).

5.4 Monitoring change in soil organic carbon

As presented in paragraph 4.2.2, the soil organic carbon content will be estimated based on literature values linked to the growth of aboveground mangrove vegetation. Therefore no specific monitoring for soil organic carbon is needed, this carbon stock will be estimated based on the monitoring of returning mangrove vegetation cover as presented in paragraph 5.3.

[31] Zanne, Amy E. et al. (2009), Data from: Towards a worldwide wood economics spectrum, Dryad, Dataset, https://doi.org/10.5061/dryad.234

5.5 Procedures for Quality Assurance (QA) / Quality Control (QC)

Carbon monitoring procedures will be developed by personnel experienced with carbon monitoring. Personnel implementing carbon monitoring will be trained on said monitoring procedures and their skills will be evaluated to confirm aptitude. The quality of carbon stock monitoring data will be evaluated by cross checking field-based mangrove extent data with remote sensing data (mangrove extent).

5.6 Reporting of Monitoring Results

The reporting of the monitoring results will be done by the project on the following basis:

1. Annual classification of returning mangrove forest cover in the Project area presented;
2. Monitoring report presenting the estimated change in carbon stock in the mangrove tree biomass pool and the soil organic carbon pool (as described in 5.3 and 5.4).

6 BIODIVERSTIY IMPACTS

6.1 Without-Project Biodiversity Scenario

6.1.1 Existing Conditions (B1.1)

The project zone is situated inside the National Parks Cacheu and Cantanhez as well as on community lands in the buffer zone of the National Parks (see map in section 1.12).

The distribution of the different plant and animal species in the ecosystems found in the project zone is dictated by the degree of immersion caused by the tides.

- The inlets and estuary channels, always submerged, are the habitat of fish, shrimps, and marine mammals.
- The mudflats are predominantly occupied by seaweed, worms, shells, echinoderms, and crustaceans.
- In the mangrove forest, the tree species are themselves distributed according to their suitability for immersion: *Rhizophora* with aerial roots are capable of withstand depths and times of immersion greater than the *Avicennia* closer to the earth on more salty soils.
- Beyond the mangroves stretches short vegetation composed of plants tolerant to salt that is only flooded during the highest tides.

The ecosystems (mangroves, mudflats and palm savannahs) inside both National Parks as well as the mudflats and remaining intact mangroves, palm savannahs and dryland forests outside the parks hold significant biodiversity value.

Guinea-Bissau is among the 15 countries of the world and the second of Africa, after Nigeria, with larger mangroves surfaces (GIRI et al., 2011, in Biai, 2015[32]). The mangroves provide habitat to a range of terrestrial and marine species such as hippopotamus (*Hippopotamus amphibius*), the African manatee (*Trichechus senegalensis*), the African dwarf crocodile (*Osteolaemus tetraspis*), the Nile crocodile (*Crocodylus niloticus*) and the bottlenose dolphin (*Tursiops truncates*). The ecoregion is important for many Afro-tropical species but

[32] Biai, J. (2015). Strategy and national action plan for the biodiversity 2015-2020. Bissau: The Republic of Guinea-Bissau–The State's General Office of the Environment.

is also an important breeding and staging habitat for migrating Palaearctic birds (Bos et al, 2006[33]). Diverse nesting and wintering avifauna composed mainly of water birds (shorebirds, egrets, crowned crane, grey pelican, pink and dwarf flamingo, darters, cormorants, terns, kingfishers) of raptors (fish eagle, osprey) as well as a high density of migrating passerines from the Palearctic (RAMSAR, 2015). To date 248 bird species have been recorded in Cacheu National Park including (IBAP, 2014 in RAMSAR, 2015) seven species of the Guinea – Congo Forests biome (Birdlife International, 2021[34]). In the 2020 World Waterbird Count in Cacheu National Park, 11,864 individuals were recorded in 11 polygons and in Cantanhez, 22,080 waterbird individuals were recorded in 15 polygons. This is nearly 80% of the total number of individuals registered on the coast of Guinea-Bissau, when not counting the Bijagos archipelago. The mangroves are an essential habitat for the juvenile stages of many coastal pelagic fish, mollusks, crustaceans, echinoderms and worms. Approximately 70% of the organisms captured at sea carry out part of their life cycle in a mangrove swamp or coastal lagoon (Hussain & Badola, 2008 in Garcia del Toro & Más-López, 2019). The mangroves of Cacheu and Cantanhez National Parks are important for the populations of shrimps of the Penaeidae family which feed the industrial fisheries off the Rio Cacheu, as well as for oysters that grow in large quantities on the aerial roots of Rhizophoras (RAMSAR, 2015). The high net primary productivity of mangroves and subsequent nutrient rich swells benefit the surrounding marine and coastal environment increasing both diversity as well as marine biota mass, which in turn provides an important food source for (water)birds and mammals as well as humans. This demonstrates the great potential of biodiversity in the area where the project is situated.

Most of the mangrove vegetation in Guinea-Bissau consists of trees that belong to 6 different species. The best represented belong to Rhizophora (3 species) and to Avicennia (1 species). Two other species, the Laguncularia and Conocarpus are less abundant.

Rare species or species with specific conservation significance that can be found in the project zone are: the African manatee (*Trichechus senegalensis*), the hippopotamus (*Hippopotamus amphibius*) both listed as vulnerable (VU); the humpback dolphin (*Sousa teuzsii*), classified as critically endangered (CR); the bottlenose dolphin (*Tursiops truncates*), African clawless otter (*Aonyx capensis*), Nile crocodile (*Crocodylus niloticus*) and the dwarf crocodile (*Osteolaemus tetraspis*). The critically endangered (CR) Western chimpanzee (*Pan troglodytes ssp. verus*) can be found in the subhumid forests of Cantanhez NP. The chimpanzees in Cantanhez NP are however not expected to be affected by the project activities, as the mangroves are not considered a part of the natural habitat of the species, nor are the deserted rice fields that would be eligible for restoration (Bessa et al., 2015).

The mangroves in the project zone are threatened by unsustainable rotational rice cultivation characterized by the practice of "slash-and-burn cultivation". This has led to a rapid loss of mangroves in the parks and (especially) the buffer zone. Many of these rice fields are abandoned after a few years as salt water intrudes and soils acidify. While some abandoned sites are recolonized by mangroves naturally, many others don't. These are the areas targeted for the project's restoration activities.
The degraded and abandoned rice fields currently hold little to no biodiversity value. Although there are a few bird species, such the black-tailed godwit and yellow wagtail, who seem to prefer rice fields and other cultivated land (Bos et al, 2006), we assume that degraded, abandoned rice fields are less attractive to these bird species as well, because the rice on which they feed has disappeared. Also, the salinization and acidification of the environment prevents any establishment of other vegetation and is unfavorable for (soil) organisms that could be a food source for these birds.

Additional threats to the biodiversity in the project zone are overexploitation of natural resources, including extraction of fuelwood and charcoal, overfishing, hunting and (bird) egg collection. The lack of an alternative, the lack of awareness of the population, the absence of a sustainable coastal zone management plan endangers this fragile ecosystem and can lead to a severe loss of biodiversity in the medium term as well as

[33] Bos, D., Grigoras, I. & Ndiaye, A. (2006). Land cover and avian biodiversity in rice fields and mangroves of West Africa. A&W-report 824. Altenburg & Wymenga, ecological research, Veenwouden. Wetlands International, Dakar.

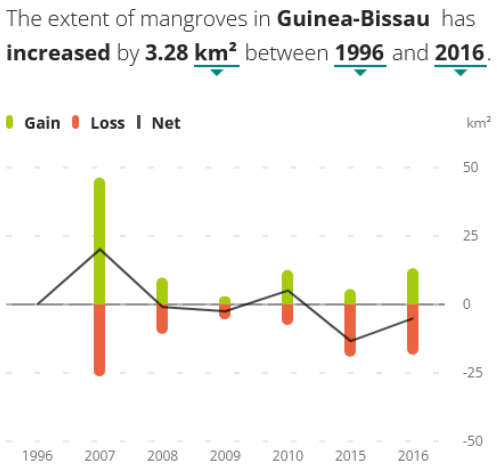
[34] http://datazone.birdlife.org/site/factsheet/rio-cacheu-iba-guinea-bissau

irreversible degradation of the environment. This situation is exacerbated by artisanal fishing and fish smoking by fishermen from neighboring countries (PRCM, 2015).

6.1.2 High Conservation Values (B1.2)

High Conservation Value	*HCV1: Concentrations of biological diversity including endemic species and rare, threatened or endangered species, that are significant at global, regional or national levels.*
Qualifying Attribute	The mangroves, inlets, mudflats and sub-humid forest within the project zone (which contain PNTC and PNC as well as their periphery) are HCV1 areas as they hold multiple critically endangered, endangered and vulnerable species. The mangroves, inlets, and mudflats provide habitat to the critically endangered humpback dolphin (*Sousa teuzsii*), and other characteristic species, including the hippopotamus (*Hippopotamus amphibius*), the African manatee (*Trichechus senegalensis*), classified as vulnerable. A population of the critically endangered (CR) Western chimpanzee (*Pan troglodytes ssp. verus*) can be found in the subhumid forests of Cantanhez NP. The wetlands (mangroves, mudflats, inlets) house several species in a critical period of their life cycle. This is obvious for several species of migratory birds of Palaearctic Occidental in hard winter, such as the Black-tailed Godwit (*Limosa limosa*), Osprey (*Pandion haliaetus*) and various species of sparrow (Strategy and National Action Plan for the Biodiversity, 2015) Although within the HCV1 area, the project sites where mangrove restoration activities will take place are assumed to currently not be part of this HCV1 area, they are expected to become part in the future when the mangrove ecosystem returns.
Focal Area	Parque Natural dos Tarres de Cacheu (PNTC), Parque Nacional de Cantanhez (PNC), and their respective periphery.

High Conservation Value	*HCV2: Large landscape-level ecosystems, ecosystem mosaics and Intact Forest Landscapes (IFL) that are significant at global, regional, or national levels, and that contain viable populations of the great majority of the naturally occurring species*
Qualifying Attribute	The wetlands inside the protected areas and in the periphery of PNTC and PNC are HCV2 areas, each encompassing large (>50,000 ha) consecutive wetlands with large, relatively intact areas of mangrove. PNTC is considered as the largest area of mangrove forest in West Africa (RAMSAR, 2015). It was included in the 'Convention about the Wet Zones of International Importance, especially Habitat of Aquatic Birds' (RAMSAR) list in 2015.
Focal Area	Intact wetlands ecosystems inside the Parque Natural dos Tarres de Cacheu (PNTC) and Parque Nacional de Cantanhez (PNC) and in the periphery.

High Conservation Value	*HCV3: Rare, threatened, or endangered (RTE) ecosystems, habitats or refugia*
Qualifying Attribute	Although globally, mangroves are in decline, at a rate of 1% per year and it is estimated that 50% of the world's mangrove forests have already been lost, the extent of mangroves in Guinea-Bissau is overall increasing. The below graph from Global Mangrove Watch shows significant loss of mangrove, but also (re-)growth between 1996 and 2016.  We therefore assume that the mangroves in the PNTC and PNC and in the periphery are not considered HCV3 areas.
Focal Area	n.a.

6.1.3 Without-project Scenario: Biodiversity (B1.3)

As described in the site selection section (Table 1, section 1.4.1), all sites selected for this project are sites:

- That are historically mangroves, but have been cleared (> 10 years ago) for rice cultivation;
- That are abandoned (for a minimum period of 5 years prior to the project start date) rice fields on tidal wetlands; No agricultural activities are taking place at the project start and it is not planned that those agricultural activities will return;
- That are degraded;
- Where no mangrove vegetation is present and where no natural regeneration of mangrove vegetation is taking place;
- Where the tidal barriers and drainage systems are still intact at the project start date, preventing tides from coming in;

These abandoned rice fields are expected to remain barren in the baseline scenario and will contribute little to the biodiversity in the area (see Figure 15).

Figure 15. Abandoned rice field in Guinea-Bissau

Without the project taking place, the threat of further clearing and cultivation of existing mangrove areas in the project zone will also continue to exist, though this is primarily expected in the periphery, since there is an active VCS certified REDD project in PNTC and PNC with the aim to protecting the existing mangroves in both National Parks. Continued clearing of existing mangroves will further degrade the ecosystem and will especially negatively affect the rare and threatened species mentioned above. With regards to the expected without-project effect on the many species of waterbirds, raptors and migrating passerines, the report of Bos *et al.* (2006) shows that several of these bird species prefer more open habitats (such as savannah, open water or the mudflats) and a few species, such the black-tailed godwit and yellow wagtail, seem to have a preference for rice fields and other cultivated land. Continued clearance of mangroves may even favour some of those bird species, provided that the areas will not degrade. We expect that degraded, abandoned rice fields will over time become less attractive to these bird species as well, because the rice on which they feed will disappear. Also, the salinisation and acidification of the environment will prevent any establishment of other vegetation and will negatively affect the (soil) organisms present.

6.2 Net Positive Biodiversity Impacts

6.2.1 Expected Biodiversity Changes (B2.1)

Biodiversity Element	Restoration of degraded land to functional mangrove ecosystems within the project zone and reduction of mangrove clearing activities
Estimated Change	- Increase of 2,500 hectares of mangrove forest cover in the project zone - Increase of habitat for key species (such as the manatee) - Restoration of hydrology and natural tidal flow in the restoration areas.
Justification of Change	The mangrove cover will increase by human-assisted natural revegetation, which includes restoring the hydrology by breaching dykes. Furthermore, it is agreed with the communities that restored mangroves will not be removed, and the land will not be used for agriculture anymore. The project will develop and support livelihood activities for the communities (such as improved sustainable agricultural practices, diversification, schooling, alternative livelihoods, etc.) that are also aimed at reducing the pressure on the mangrove.

6.2.2 Mitigation Measures (B2.3)

The restoration activities are expected to have no negative impacts on biodiversity and the existing HCVs in the project zone. There is no risk of displacement of rice cultivation activities, or any other activities that may increase pressure on or negatively affect biodiversity elsewhere, due to the project activities, because the fields are already abandoned and there is currently no land use. There is the risk of reversal of the project biodiversity impacts in the long term, i.e. restored mangroves being cleared and brought back into cultivation. This risk is primarily mitigated by signing an agreement with the local communities in which they agree to maintain the mangroves and refrain from rice cultivation in those areas. also, a livelihoods programme is set up with the goal to provide local communities with alternative livelihood options. Additionally, by actively engaging the communities in the restoration activities and raising their awareness of the value and ecosystem services that the mangroves deliver, the project expects to gain support from the local communities in conservation and further restoration of the mangroves in the project zone. Finally, the project intends to support IBAP and local authorities in strengthening the sustainable use of mangrove resources through policy measures.

6.2.3 Net Positive Biodiversity Impacts (B2.2, GL1.4)

As described in section 6.1.3, in the without project scenario the abandoned rice fields will remain degraded and not recover to a natural mangrove ecosystem, with negative consequences for biodiversity and the functioning of the mangroves and other wetlands ecosystems within the project zone. In the project scenario, the restoration, and subsequent conservation of the restored mangroves will increase the forest cover and restore the hydrology and natural tidal flow. As described in Section 6.2.1, the project will have a positive net impact on biodiversity in the project zone, through the:

- Restoration of hydrology and natural tidal flow in the abandoned rice fields.
- Restoration of mangroves on abandoned rice fields with participation of the local communities
- Restoration and maintenance of habitats for vulnerable and threatened mangrove species;
- Establishment of a community livelihoods programme

- Awareness raising of the importance of mangrove and other wetland ecosystems
- Strengthening the sustainable use of mangrove resources
- Monitoring of the project's implementation and climate, community and biodiversity impacts

6.2.4 High Conservation Values Protected (B2.4)

The project will aid the return of the fragile mangrove ecosystem and in doing so also support endangered species mentioned above by providing improved habitat. No HCVs related to biodiversity are negatively affected by the project.

6.2.5 Species Used (B2.5)

In most cases, the project will not plant any trees. By breaching the dykes and restoring the natural water flow, the mangrove will re-establish by itself through natural regeneration. In a few sites, native mangrove trees may be planted to support the returning of the mangrove ecosystem. The species that will be used are species of native *Rhizophora* or *Avicennia*, depending on the location and environmental circumstances of the restoration site.

6.2.6 Invasive Species (B2.5)

All planted trees are native species, and no invasive species will be introduced by the project in the project zone, or in other areas affected by the project.

6.2.7 Impacts of Non-native Species (B2.6)

No non-native species will be used by the project

6.2.8 GMO Exclusion (B2.7)

No GMOs will be used by the project.

6.2.9 Inputs Justification (B2.8)

No fertilizers will be used by the project

6.2.10 Waste Products (B2.9)

Waste products resulting from the project activities may include rubbish and human waste. Little rubbish is expected to clutter the project area. However, it will be communicated to the local people that they ought to clear off any rubbish, such as plastics, metals, papers, and other abandoned items from the project area regularly when they manage the area. Human waste is considered to be of low impact and negligible.

6.3 Offsite Biodiversity Impacts

6.3.1 Negative Offsite Biodiversity Impacts (B3.1) and Mitigation Measures (B3.2)

The project will only positively impact the habitat and quality of the ecosystem, and no potential negative impacts were identified. Also, as mentioned in 6.2.2, there is no displacement of activities that may increase pressure on or negatively affect biodiversity elsewhere, due to the project activities, because the fields are already abandoned and there is currently no land use.

Also as mentioned in 3.2.3, no ecological leakage is expected. The project sites are connected to a large river system, that has no barriers to open ocean. Any water entering the newly opened rice field dykes will not come from other wetland areas, but rather from open ocean and large river systems. Breaching a dyke to an area of tens of hectares will not alter the overall available water around that area.

Therefore, we consider no potential negative offsite biodiversity impacts.

6.3.2 Net Offsite Biodiversity Benefits (B3.3)

Since there are no potential negative offsite impacts on biodiversity expected, the net offsite biodiversity benefits can at the least be considered not negative. Moreover, we expect that the restoration of mangroves in the project area will positively contribute to the overall ecosystem functioning inside as well as outside the project area. As the mangroves are also important breeding and nursery grounds for many marine animal species, the restoration activities are expected to have a positive impact on these populations in the coastal area.

6.4 Biodiversity Impact Monitoring

6.4.1 Biodiversity Monitoring Plan (B4.1, B4.2, GL1.4, GL3.4)

6.4.1.1 Objectives and monitoring indicators

Objectives:

- to restore[35] 2,500 ha of degraded mangroves
- to reduce pressure on existing mangroves

Indicators:

- agreements with communities signed
- presence of animals (enigmatic species)

[35] *Restore* means restoring conditions to enable natural mangrove regeneration, as per principles of Ecological Mangrove Restoration

6.4.1.2 Methods

6.4.1.3 Monitoring plan tables

Objective	Indicator	Description	Target	Data collection method	Who	When	Where	Cost to project
Restore 2,500ha of fully functional mangrove ecosystem on abandoned bolanhas	% progress of site restoration implementation	Total surface area under restoration (ha)/2500ha objective	2,500ha	During restoration activities: geo-referencing of sites	Community monitoring committee, WIACO	Monthly	Entire project surface area	Low
Restore 2,500ha of fully functional mangrove ecosystem on abandoned bolanhas	Success of restoration activities (extent)	Total surface area within restoration sites with newly recovered mangroves	2,500ha	Using annual updates of the Global Mangrove Watch extent layers	WI-GO	Yearly	Entire project surface area	Low
Restore habitat of enigmatic mangrove-dependent species	Observation of enigmatic species	Counts of selected enigmatic species reported by the monitoring committee from each community	Increase vs baseline	Add reporting of selected/easily identifiable enigmatic species to collaboration agreement with communities + training of committee members	Community monitoring committee, WIACO	Yearly	In and around restoration sites	Low
Decrease pressure on the mangrove ecosystems of Cacheu and Cantanhez National Parks	Community awareness of threats to the mangrove ecosystem, and their role in it.	Awareness of communities about their role in the landscape, the threats to the ecosystem, and the consequences of degradation for their livelihood	Increase vs baseline	Community survey	WIACO / subcontractors	Two times (start/end of project)	Beneficiary communities	Low

6.4.2 Biodiversity Monitoring Plan Dissemination (B4.3)

WIACO will monitor the restoration performance, biodiversity impacts and the socio-economic impacts of the restoration activities as well as the livelihood program. Local community members will be trained and actively participate in monitoring. WIACO will communicate the monitoring results with the communities and will take into account the feedback received from the communities. The Monitoring plan and future monitoring reports will be shared with the village chiefs, who in turn share this with interested community members, and copies of the plan and the reports can be requested at WIACO. The reports are made in Portuguese, English and French.

7 COMMUNITY IMPACTS

7.1 Without-Project Community Scenario

7.1.1 Descriptions of Communities at Project Start (CM1.1)

Section 1.13.2 gives a general description of the social parameters and characteristics of the communities inside and in the periphery of both Cacheu and Cantanhez National Parks.

Main ethnic groups in the project zone

There is a great ethnic, linguistic, cultural and social diversity in Guinea-Bissau. The main ethnic groups inside Cacheu National Park and its buffer zone are the Felupes (32%), the Manjacos (27.9%) and the others with a lower percentage 21.2% and 15.9% are respectively Balantas and Cassanga. Inside Cantanhez National Park and its buffer zone, there are six main ethnicities present: Soussu, Tanda, Nalus, Balanta, Fula and Pepel. The historical ethnographic map of 1841-1936, below (Figure **16**) gives an indication of the distribution of the different ethnic groups within Guinea-Bissau. However, due to population dynamics over the past decades the map may not be fully representative of the current distribution.

Predominantly the Balantas are engaged in rice cultivation in mangroves. For this ethnic group, rice cultivation represents the main economic activity, both in terms of use of the family labour as of the total working time invested annually (Biai, 2015). The Balantas represent approximately 30% of the population and are the largest ethnic group in Guinea-Bissau. Also, the Baiote, Manjacos and Felupes are known for cultivating rice in mangroves. The Nalus and Fula practice mixed farming that includes upland farms, mangrove rice fields and orchards (Sousa *et al.*, 2014[36]). The Fula are also known for cattle herding and are one of the main ethnic groups that has taken up cashew farming (Temudo & Abrantes, 2014[37]).

The population of the villages in the project zone is quite balanced in terms of number of women and men, with a progressive aging of the population as a result of young people migrating to urban centres. Creole is considered the language of communication in general, although it is spoken by a small percentage of the population within the villages of the park, around 15%, with mother tongues being more widely spoken depending on the villages (INEP / INEC, 2007).

[36] Sousa, J., Dabo, A.,m Luz, A. L. (2014). Changing Elderly and Changing Youth: Knowledge Exchange and Labour Allocation in a Village of Southern Guinea-Bissau. In *Future Agricultures Working Paper 081* (Issue March).

[37] Temudo, M. P., & Abrantes, M. (2014). The cashew frontier in Guinea-Bissau, West Africa: changing landscapes and livelihoods. Human ecology, 42(2), 217-230.

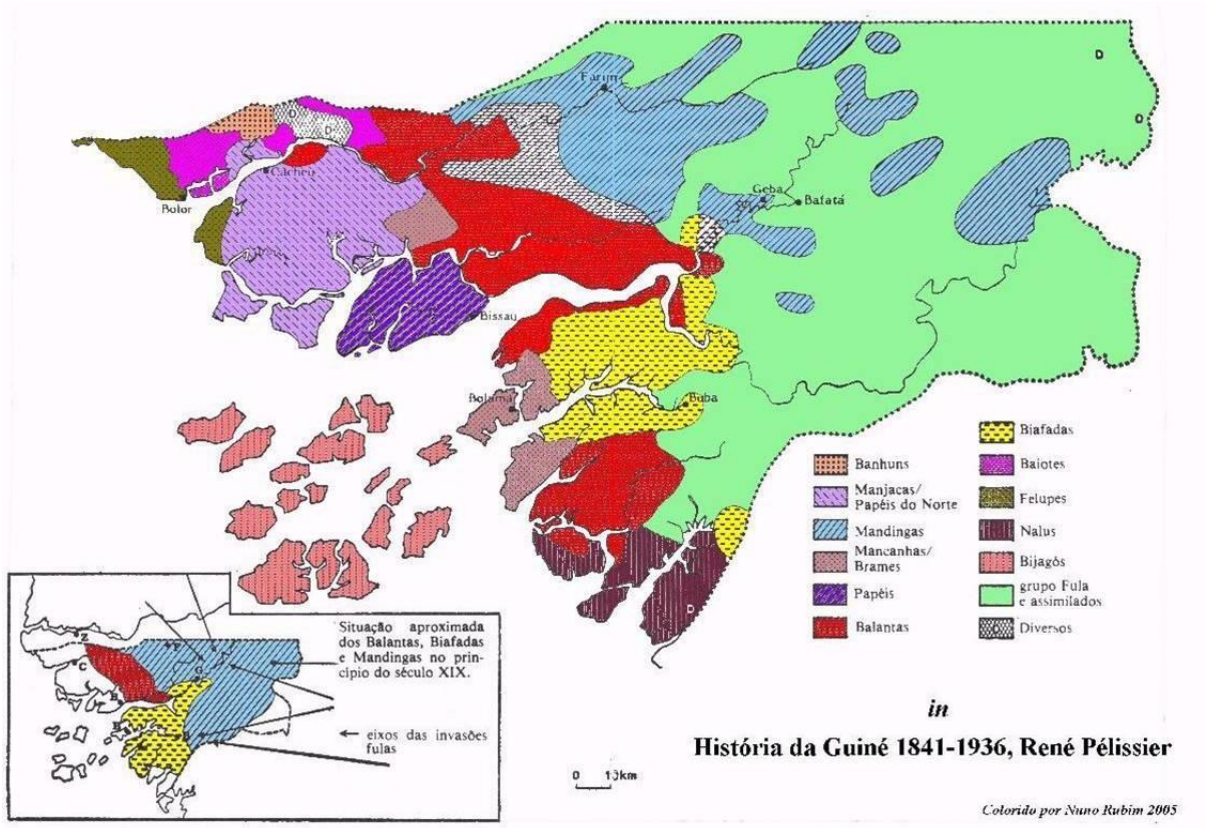


Figure 16. Ethnographic map of Guinea-Bissau from 1950.

Livelihoods of the communities in the project zone

The agricultural sector in the region is dominated by two crops: rice and cashew nuts. The country has a very old rice tradition, whereas the development of the cashew tree is recent (20 years). Rice is mainly grown in mangroves areas and in smaller proportions in the lowlands. The diverse natural and climate conditions allow for the production of a range of food crops such as millet, sorghum, maize, cassava, sweet potato and groundnut (which was formerly a cash crop) and cash crops such as cotton. Fruit trees are also grown, including mango trees, citrus fruits, and banana trees. The agricultural production capacity decreased over the past 20 years, due to several factors, the main one being the decrease in rainfall.

Community livelihoods and income generation within the project zone rely mainly on agriculture and extraction of natural resources. The large mangrove areas play a central role for indigenous communities living around or having traditional use rights over their natural resources. In these areas, using traditional practices, the local communities established rice fields (*bolanhas*) and collected natural resources such as wood, fish and mollusks. The practice of rice cultivation is a traditional practice based on knowledge and experience that has been developed over a long period of time and is mastered by only a few ethnic groups (Balantes, Baiotes, and Felupes in particular) which can be considered as a unique cultural heritage (Campredon 2010, in RAMSAR, 2015[38]). This heritage is however threatened because the rice cultivation of mangrove is in decline for both climatic and sociological reasons. Over time, many rice fields established in former mangroves were abandoned and were never restored due to the lack of youth work force in the rural areas as exodus to urban centers started to increase. These rice fields were abandoned without opening the dykes, preventing seawater to return, which in turn caused the soils to salinize, oxidize and acidify and prevented the natural regeneration

[38] RAMSAR (2015). Ramsar Information Sheet (RIS) for Site no. 2229, Parc Naturel des Mangroves du Fleuve Cacheu (PNTC), Guinea-Bissau. Available at https://rsis.ramsar.org/ris/2229

of mangroves. Not only did the mangroves not return, but also these lands became unproductive and contribute to local food insecurity.

Many farmers in the region have taken up cashew cultivation for income, instead of shifting cultivation for subsistence. Other food crops are not commonly cultivated, and the communities are facing problems with malnutrition. Income generated by economic activities (mainly cashew farming and collection of oysters, fuelwood and shellfish) is essentially used to purchase rice to compensate for the deficit period. To a limited extent, local communities use small palm trees' forests they have access to (IUCN, 2018[39]).

Community natural resource use

According to the Strategy and National Action Plan for the Biodiversity of Guinea-Bissau (Biai, 2015), fish and mollusks are the main sources of animal protein of the country, and they are very important for the economy and the food safety of especially the poorest rural communities. The traditional exploitation of mollusks, crabs and shrimp in the mangrove zone is mostly done by women. The revenues obtained from these small scale subsistence activities is essential to the livelihoods of the local communities, providing in their basic needs as well as providing additional income.

The local communities traditionally use branches and poles from the forest and mangroves for construction and fencing and they collect firewood for cooking and smoking of fish. The gathering of firewood is mainly done by women and girls. The exploitation of firewood was extensive and predominantly for own consumption. However, a growing population and growing demand for firewood in the big cities has increased the pressure on forests. Particularly mangroves have come under pressure due to the preference for mangrove tree species as firewood or charcoal.

The ecosystems in the project zone are also expected to hold value for the traditional use of plants for medicine. For instance, the Strategy and National Action Plan for the Biodiversity of Guinea-Bissau (Biai, 2015), noted that 46 species of plants of medicinal use were identified for the National Park of Orango Island, of which 23 tree species, 15 shrub species, 6 herbacious species and 2 liana species. This indicates that also PNTC and PNC will provide similar valuable natural resources for medicinal use, especially in the remaining natural forest ecosystems. We expect that mangrove ecosystems, with a limited diversity of plant species, hold little value for traditional medicinal plant collection. We also did not find any information of mangrove plant species being used for medicinal purposes in Guinea-Bissau.

Cultural & spiritual significance of the landscape and its natural resources

In Guinea-Bissau, sacred sites in remaining forest areas and bushes have great sociocultural and symbolic importance in the tradition of several ethnic groups and their communities (Biai, 2015). These sites play a role in the demarcation and dynamics of the different ethnic and village territories but also play a role in how local communities perceive and interact with nature. In the project zone of Cacheu National Park, local communities have several sacred forests that play a role in the conservation of biodiversity. These sites are associated with their cultural practices, such as places of initiation and magical practices (RAMSAR, 2015). The communities also recognize the role of these sacred sites as breeding grounds and reserves of natural resources, which can be called upon in the event of famine. The sacred sites thus contribute to the resilience of the system both on a natural and cultural level. The sacred forest sites have not been mapped but are expected not to be situated in the mangroves. Some villages in the PNTC also have sacred inlets (bolons), where only subsistence fishing or ceremonial fishing is practiced. These sites have been mapped and are considered in the Park Management plan of PNTC (see Figure 17, below). As for the area in and around Cantanhez National Park, a study by Costa (2010; in Casanova *et al*., 2014[40]) identified more than thirty sacred sites valued and protected by local people. For instance, there are small areas within remaining forest fragments which are considered sacred, where several ceremonial rituals take place (Casanova *et al*., 2014). Also, while these sacred forest sites have not been mapped, they are expected not to be situated in the mangroves.

[39] IUCN, 2018. GEF Project document. Protection and Restoration of Mangroves and productive Landscape to strengthen food security and mitigate climate change. Available at: https://www.iucn.org/sites/dev/files/2018.04.03_prodoc_tri_guinea_bissau_final.pdf

[40] Casanova, C., Sousa, C., & Costa, S. (2014). Are animals and forests forever? Perceptions of wildlife at Cantanhez Forest National Park, Guinea-Bissau. Memórias, 16, 69-104.

Access to natural resources within and outside the National Parks

A major part of the project zone is situated within Cacheu and Cantanhez National Parks. These are owned by the state and managed by the institute of Biodiversity of the Protected Areas (IBAP).

In both parks, there is a zoning of land use inside the national parks under the supervision of IBAP (see Figure 17 and Figure 18 below). These zones are:

- **Core zone** ("Zona Central") – reserved for the conservation and protection of plant and animal species
- **Buffer zone or transition zone** ("Zona Tampão") – where it is possible to carry out certain development activities but, in a manner well controlled by the Park Management Board
- **Development zone** ("Zona de Desenvolvimento Sustentado") – where it is possible to practice sustainable development activities, including construction of houses, farms, small-scale agricultural activities, etc.)

The resource rights and access rights to the project sites inside the national park are reserved for residents, but in certain sectors like fishing, honey harvesting, small-scale farming, this is only authorized with consent from the Park Management Board. A clear distinction between both National Park management zones is that while in PNTC all mangroves are included in the *Core zone* (focus on conservation), in PNC the mangroves are part of the *Buffer zone* (focus on restricted access and use) or the *Development zone* (focus on sustainable use). The subhumid forest of PNC, being an important habitat for the critically endangered Western chimpanzee is included in the *Core* zone.

Additionally, the management plan for PNC has made different management zones for traditional fishing in the inlets of the national park. All inlets are indicated as important reproduction zones. The inlet west of the park is designated for '*moderate fishing*' and the inlet east is designated for '*intensive artisanal fishing*'.

The project sites in the periphery, outside of the National parks, are under community management (see section 1.7). Extraction of natural resources in the existing mangrove, forest and other ecosystems are locally governed by the village management committees.

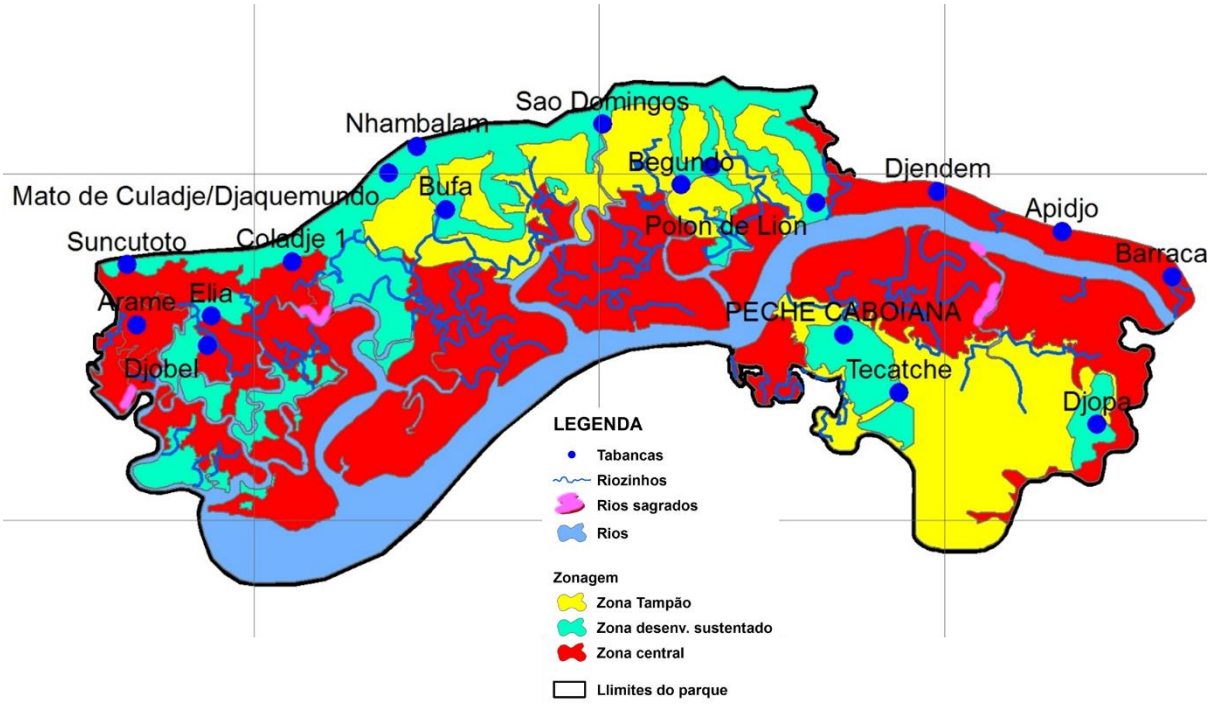


Figure 17: Park management zones of Cacheu National Park (Source: Plano de Gestão Parque Natural dos Tarrafes do Rio Cacheu – PNTC Guiné-Bissau 2008 – 2018)

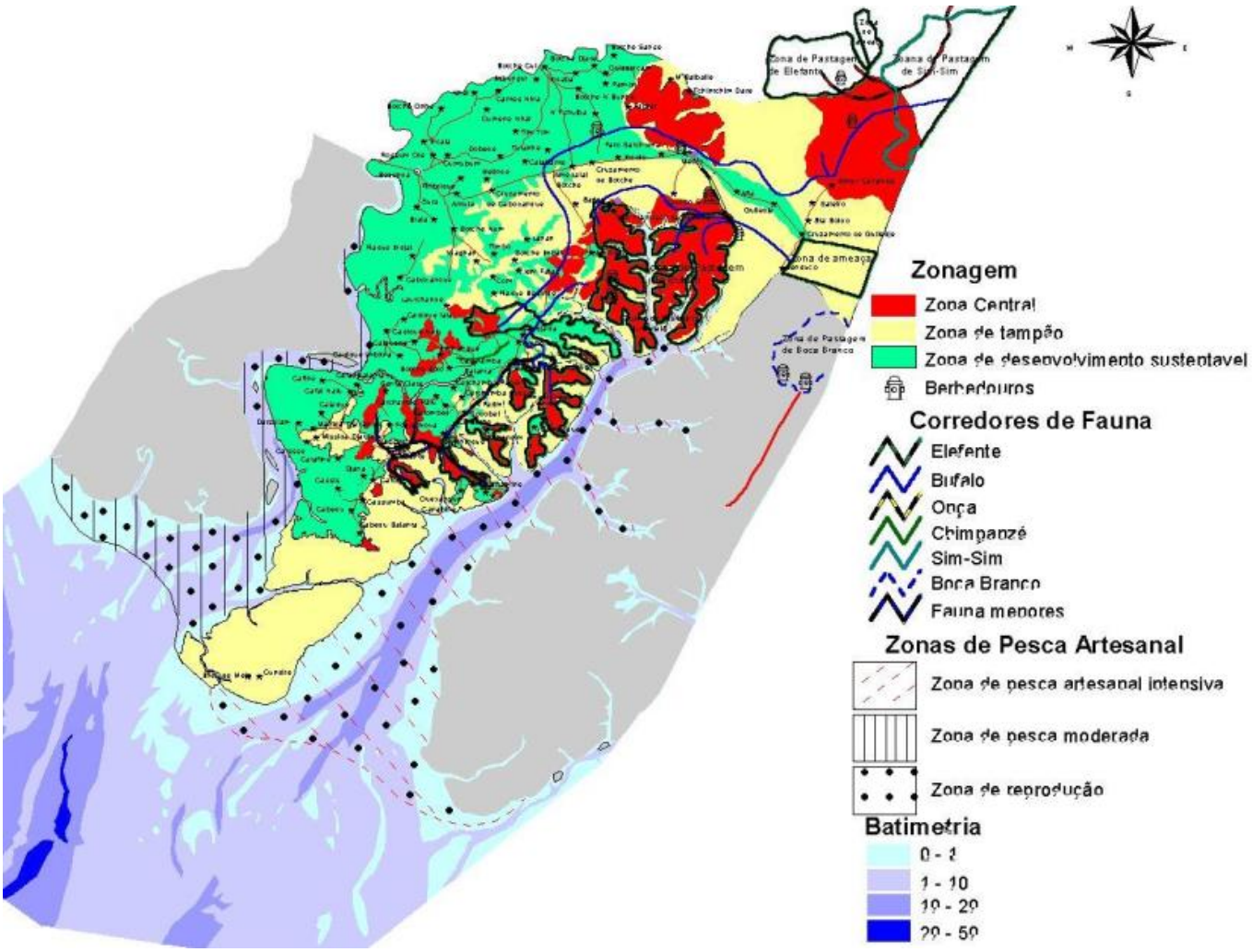


Figure 18: Park management zones of Cantanhez National Park (Source: Plano de Gestão Parque Natural dos Tarrafes do Rio Cacheu – PNC Guiné-Bissau 2008 – 2016)

7.1.2 Interactions between Communities and Community Groups (CM1.1)

In general differences in land use and livelihood activities can be found between the different ethnic groups. Although all the ethnic groups in the project zone are engaged in mangrove rice farming, mainly the Balantas, Manjacos, Baiotes and Felupes are practicing this land use. Relative to the other ethnic groups, these groups are also less engaged in cashew growing.

Also, there are differences in livelihood activities between men and women. While men and women both work in farming and fishing, it is estimated that women supply more than 55% of the agricultural labour (Biai, 2015). They play an important role in the gathering of cashew nuts, livestock management and the storage, processing, and sales of produce. Women are also in charge of natural resource collection, such as the collection of molluscs, firewood and manual fishing in the mangroves, estuaries, rivers, lakes and rice fields. Although women play an important role in agriculture and natural resource extraction, they remain a marginalized group with limited land use rights and power in decision making, compared to men. There is a

clear gender disparity with regards to poverty and women are generally less educated. Women also often must combine their work with family responsibilities. Their work (such as natural resource collection and processing of agricultural produce) is hindered by the lack of tools, low education and the great distance that they have to travel to collect these resources.

Land tenure rights are clear and communities and ethnic groups work/use exclusively their own lands. There is no known conflict between communities.

7.1.3 High Conservation Values (CM1.2)

High Conservation Value	*HCV4: Basic ecosystem services in critical situations, including protection of water catchments and control of erosion of vulnerable soils and slopes.*
Qualifying Attribute	The wetlands in PTNC and PNC and the periferique contribute to water quality and flow regulation and the management of extreme flow events. Specifically, mangroves in PTNC and PNC and the periferique, contribute to soil fixation and act, through their roots, as filters to retain sediments, mangrove vegetation contributes to prevent erosion and to stabilize the shoreline.
Focal Area	The wetlands and mangroves in Parque Natural dos Tarres de Cacheu (PNTC), Parque Nacional de Cantanhez (PNC), and their periferique

High Conservation Value	*HCV5: Sites and resources that are fundamental for satisfying the basic necessities of local communities or indigenous peoples (for livelihoods, health, nutrition, water, etc…), identified through engagement with these communities or indigenous peoples*
Qualifying Attribute	The waters that limit the PNTC and PNC are extremely rich in biomass. The communities strongly depend on mangrove ecosystem services for food security and livelihood. The mangrove ecosystem is a central element of their way of life, since it is an important source of food, energy and building material (fish, shellfish, firewood, wood) as well as soils for rice production.
Focal Area	Project site: Parque Natural dos Tarres de Cacheu (PNTC), Parque Nacional de Cantanhez (PNC), and their periferique

High Conservation Value	*HCV6: Sites, resources, habitats and landscapes of global or national cultural, archaeological or historical significance,* *and/or of critical cultural, ecological, economic or religious/sacred importance for the traditional cultures* *of local communities or indigenous peoples, identified* *through engagement with these local communities or* *indigenous peoples.*
Qualifying Attribute	- Local communities have several sacred forests. These sites are associated with their cultural practices, such as places of initiation and magical practices. The communities also recognize the role of these sacred sites as breeding grounds and reserves of natural resources, which can be called upon in the event of famine. The sacred sites thus contribute to the resilience of the system both on a natural and cultural level.

	The sacred forest sites have not been mapped but are expected to not be situated in the mangroves. - Some villages in the PNTC also have sacred inlets (bolons), where only subsistence fishing or ceremonial fishing is practiced. These sites have been mapped and are considered in the Park Management plan of PNTC (see Figure 17, above)
Focal Area	- Sacred inlets (bolons) in Parque Natural dos Tarres de Cacheu (PNTC). - Sacred forest areas / bushes inside Parque Natural dos Tarres de Cacheu (PNTC), Parque Nacional de Cantanhez (PNC), and their periferique (not mapped).

7.1.4 Without-Project Scenario: Community (CM1.3)

As described in section 6.1.3, the abandoned rice fields on which the project activities are targeted are expected to remain barren in the baseline scenario and will have little or no socio-economic value to the communities.

The threat of new clearing and cultivation of existing mangrove areas in the project zone will also continue to exist, however this is primarily expected in the periphery, since there is an active VCS certified REDD project in PNTC and PNC with the aim to protecting the existing mangroves in both National Parks. Continued clearing of existing mangroves will further degrade the ecosystem and will negatively affect the regulating services of mangroves and the availability of natural resources within this ecosystem (i.e. fish, crustaceans, molluscs, wood).

Communities would not benefit from the improved ecosystem functioning, and accompanying improved ecosystem services like improved fish stocks. Additionally, they would not be involved in the livelihood activities, decreasing the chances of the community groups to improve and diversify their sources of income.

7.2 Net Positive Community Impacts

7.2.1 Expected Community Impacts (CM2.1)

Community Group	Communities directly involved in project activities
Impact(s)	Improved livelihoods, improved perceived value of mangroves for 1,000 people
Type of Benefit/Cost/Risk	Communities directly involved in the project will be directly consulted to identify priority community livelihood support activities. A particular focus will be put on improvement of food supply and other bolanha/mangrove related improvements.
Change in Well-being	Predicted positive impacts may for example include (TBC in the agreement to be reached with each community): • Increased efficiency of food processing • Increased sustainability of food production • Diversification of sources of income (e.g. through improvement of value chain for mangrove-sourced resources already exploited (e.g. honey, oysters)) • Improved sustainability of mangrove usage

Community Group	Communities inspired or indirectly affected by project activities
Impact(s)	Improved perception of mangrove value, improved sustainability of mangrove usage for 40.000 people
Type of Benefit/Cost/Risk	Predicted impact of improved sustainability of mangrove usage will be achieved through awareness raising activities carried out by communities from pilot sites in addition to local partners. This may in turn inspire other NGOs or organisation to upscale activities implemented at pilot sites.
Change in Well-being	Potential regional improvement of sustainable usage of mangroves achieved through improved perception of mangrove value and additional financing/support attracted to the region.

7.2.2 Negative Community Impact Mitigation (CM2.2)

No negative community impacts are expected as only abandoned bolanhas will be used as project sites, and land tenure rights verification is a key step in site selection to ensure avoidance of community conflict generation through implementation of project activities.

7.2.3 Net Positive Community Well-Being (CM2.3, GL1.4)

Should the project not take place, abandoned bolanhas will likely remain abandoned and serve no purpose or provide only limited ecosystem services to depending communities. Project activities will restore mangroves at selected project sites and thereby mangrove-associated ecosystem services (e.g. fisheries, apiculture, oyster culture). Improved gender equity could be an indirect benefit of project activities as apiculture and oyster culture are typical women-driven activities, ensuring that women no longer depend solely on men for subsistence.

7.2.4 High Conservation Values Protected (CM2.4)

The project sites, where the restoration activities will take place, currently hold no High Conservation Values. The project activity (mangrove restoration) will strengthen the ecosystem services of the existing wetlands and mangroves in Cacheu and Cantanhez National Parks, and their periphery. Also, by restoring mangroves the project activities are expected to have a positive effect on the availability of natural resources inside as well as outside the project zone.

In the implementation of the project activities, cultural and religious sites such as described under HCV 6 will be identified and project activities shall respect these sites. Some of the restoration sites in Cacheu National Park may be adjacent to sacred inlets. However, it is assumed that none of the restoration sites will overlap or affect with these inlets.

7.3 Other Stakeholder Impacts

7.3.1 Impacts on Other Stakeholders (CM3.1)

The project will positively impact the size and quality of the mangrove ecosystem. As the mangroves are also important breeding and nursery grounds for many species important for the local communities, the restoration activities are expected to also have a positive impact on the availability of natural resources outside the project zone.

As mentioned in 6.2.2, there is no displacement of activities that may cause land disputes, increase pressure on or negatively affect land availability elsewhere, due to the project activities, because the fields are already abandoned and there is currently no land use. The project will serve to inspire other stakeholders to replicate and upscale project activities. In addition, through synergies with other programmes (e.g. To Plant or Not To

Plant), the project aims to influence government stakeholders towards more sustainable/successful mangrove restoration approaches (e.g. away from tree planting). In addition, public consultations performed with partner communities will serve to identify local priorities in terms of livelihood improvement. As some of such identified priorities (e.g. WASH, education and alphabetisation) are not directly in scope of this programme or the topics of expertise of Wetlands International, this information will be shared with other organisations (both government and NGOs) feeding their implementation plans.

7.3.2 Mitigation of Negative Impacts on Other Stakeholders (CM3.2)

N/A. No negative impact to other stakeholders expected.

7.3.3 Net Impacts on Other Stakeholders (CM3.3)

As described in 7.3.1, no negative impacts on other stakeholders are expected. When successful, the project could be a good example and inspiration to other stakeholder to engage in similar activities. The projects experience in restoring mangrove ecosystems, working with local communities and other stakeholders, and carbon trading could be proven to be very valuable to other stakeholders. In addition, the project proponent can use the experience and lessons learned from this project in similar projects in the area or beyond. Thus, the project is not expected to result in net negative impacts on the well-being of other stakeholders.

7.4 Community Impact Monitoring

7.4.1 Community Monitoring Plan (CM4.1, CM4.2, GL1.4, GL2.2, GL2.3, GL2.5)

7.4.1.1 Objectives and monitoring indicators

Objectives:

- To enhance mangrove ecosystem services for local communities in the project area
- To improve livelihoods of involved communities
- To improve the understanding, perception and valorisation of sustainable mangroves usage and mangrove ecosystem services among partners and involved communities
- To inspire other communities and organisations to replicate and upscale project activities

7.4.1.2 Monitoring plan tables

Objective	Indicator	Description	Target	Data collection method	Who	When	Where
Enhance mangrove ecosystem services for local communities in the project area	Relative perception of ecosystem services	Perception of directly involved community members of mangrove associated ecosystem services	Increase vs baseline	Community survey	WIACO / subcontractors	Two times (start/end of project)	Beneficiary communities
Enhance mangrove ecosystem services for local communities in the project area	Mangrove extent	See section 6.4.1.3	See section 6.4.1.3	See section 6.4.1.3	See section 6.4.1.3	See section 6.4.1.3	See section 6.4.1.3
Improve livelihoods of surrounding involved communities	#people involved and/or influenced directly by restoration/livelihood activities	Number of people that were actively involved or directly benefiting from mangrove restoration or livelihood improvement activities	1,000	- List of participants for each project activity - Estimates based on population size from partner/involved communities	WIACO / subcontractors	Logged after each activity, reviewed 2x yearly	Beneficiary communities
Improve livelihoods of surrounding involved communities	#of livelihood improvement activities carried out	Sum of livelihood activities implemented	≥1 per community directly involved in the project	Activity reports from Wetlands International and its sub-contractors	WIACO / subcontractors	Logged after each activity, reviewed 2x yearly	Start of implementation phase for each community
Improve the understanding, perception and valorisation of sustainable mangroves usage among partners and involved communities	#of trainings provided	Number of trainings provided to communities involved in the project	≥1 per community	- Training activity reports	WIACO / subcontractors	Logged after each activity, reviewed 2x yearly	Beneficiary communities
Improve the understanding, awareness and valorisation of sustainable mangroves usage among partners and involved communities	Relative awareness of opportunity (livelihood diversification)	Awareness of directly involved community members of opportunities for livelihood diversification.	Increase vs baseline	Community survey	WIACO / subcontractors	Two times (start/end of project)	Beneficiary communities

Inspire other communities and organisations to replicate and upscale	Community inspiration for upscaling of project activities (mangrove restoration + livelihoods)	# people inspired by activities performed as part of the project	40,000 people	Communication campain audience measurements (radio, social media, etc.)	Wetlands International Global Office + WIACO Communication team	After each communication event, yearly review	Remote or on-site depending on communication channel
Inspire other communities and organisations to replicate and upscale	Population inspired to replicate/upscale project activities	# of unsollicited land proposals for restoration activities	≥1 per community from adjacent/networked communities	Reporting from communities and subcontractors to Wetlands International	WIACO / subcontractors	Yearly review	Centralised by WIACO

7.4.2 Monitoring Plan Dissemination (CM4.3)

The reporting of the community monitoring results will be done by the project on the following basis:

1. Progress indicators (e.g. # of livelihood activities implemented, # of trainings provided) will be reviewed twice yearly and communicated to donors.
2. Impact monitoring indicators (e.g. improved perception by local communities, # of people inspired) will be collected as per the monitoring schedule described under section 7.4.1.2. These will be leveraged to generate ad hoc external communication on media channels (e.g. on social media/radio), but more importantly back to the communities involved in the project, government, partner organisations and focus groups. These communication aspects will be both part of the local project implementation and supported by the global campaign of the To Plant or Not To Plant programme.

8 ANNEXES

8.1 Annex I. Overview of Identified relevant Stakeholders

Stakeholder	Interest in the project (High/low + explanation)	Effect of project on their interests (High/Low + explanation)	Means of involvement (e.g. Meetings, formal correspondence, etc.)
Government of GB - Ministry of environment and biodiversity	High. It is responsible for the conservation and restoration of wetland ecosystems including mangroves	High. to support the conservation and restoration of the mangrove in GB and the improvement of the living conditions of the communities living around this ecosystem	At project design phase: information At project implementation: Ongoing consultations (Synthèse du rapport d'activité
Regional Government Tombali, Cacheu,	High. Regional Policy Administrator	High. Consideration of restoration and conservation activities in their regional master plan	At project design phase: information At project implementation: sharing of results
Sector Government Cacine cassaca bebanda, sao domingo, caheu, calikiss, caio suzana	High. Sector policy administrator	High socio-economic and environmental development of the area	At project design phase: information
Local community representatives (local administrator, CBO, village management committee, opinion leaders, village chiefs)	High, the local community members give their consent to the restoration activities on the land where they hold customary resource/access/ownership rights and provide voluntary labour in restoration activities.	High, the local community members are directly affected by the benefits that the project provides through the livelihood program as well as any future effects of the restoration of mangroves	At project design phase: informational meetings, Community needs assessment, formal signing of Collaboration protocol, consultation meetings At project implementation: Ongoing consultations
Offsite communities	High. Indirectly benefits the project	Low	Offsite communities are informed of the project through local media (newspaper, radio)
IUCN	High: development of synergy between our projects	High, avoiding double counting, sharing experience,	At project design phase: information at project implementation: Ongoing consultations Implementing, partner capacity building

IBAP	High. IBAP has an interest in restoring mangrove areas to the benefit of Biodiversity in the National Parks (Cacheu and Cantanhez).	High. The project will restore 2,500 ha of mangroves in abandoned rice fields.	Making available restorable areas in the national parks; share periodic reports capacity building
AD	High: Development of conservation activities in the arias and especially	High:Taking into account local communities and the emergence of activities, income-generating activity	Share periodic reports, capacity building Small grant
ODZH	High: development of environmental education and consultation activities	High: Sustainability of activities	Share periodic reports capacity building
GPC	High: reinforce the recommendations of the coastal zone master plan	High: strengthening coastal ecosystem management and restoration	At project design phase: information At project implementation: Ongoing consultations
Ajodemasca	High: Revitalisation of the structure to defend mangrove ecosystems	High: promoting and implementing catering activities	At project design phase: information At project implementation: Ongoing consultations share periodic reports capacity building
IMP (Institure Maritime Portuaire)	High: conservation ecosystem maritime	High: development of monitoring activities for the rational use of the resource	At project design phase: information At project implementation: Ongoing consultations
Djotchetchenglar	High: conservation of waterfowl colonies	High: development of monitoring activities of water birds colonies	At project design phase: information At project implementation: Ongoing consultations

8.2 Annex II. Stakeholder and Community Consultation meetings held and planned

Community Consultation meetings held and planned

Nr	Date	Community	Objective/goal of meeting	Participated stakeholders
1	12/06/2021	Pundame I	- meeting with the local community - diagnosis and identification of needs - negotiation and signature of collaboration protocol	68
2	12/06/2021	Pundame II	- meeting with the local community - diagnosis and identification of needs - negotiation and signature of collaboration protocol	76
3	13/06/2021	Tandé	- meeting with the local community - diagnosis and identification of needs - negotiation and signature of collaboration protocol	80
4	13/06/2021	Baraca	- meeting with the local community - diagnosis and identification of needs - negotiation and signature of collaboration protocol	36
5	14/06/2021	Antotinha	- meeting with the local community - diagnosis and identification of needs - negotiation and signature of collaboration protocol	29

Stakeholder meetings held

Nr	Date	Stakeholder(s)	Objective/goal of meeting
1	09/02/2021	IUCN	Information, contact, awareness on the Project possible synergies, implementation
2	09/02/2021	IBAP	Information, contact, awareness on the Project possible synergies, implementation
3	09/03/2021	Ministry of environment and biodiversity	Information, contact, awareness on the project
4	15/03/2021	ODZH	Information, contact, awareness on the Project possible synergies, implementation
5	24/03/2021	Ajodemasca	Information, contact, awareness on the Project possible synergies, implementation
6	24/04/2021	Djotanglar	Information, contact, awareness on the Project possible synergies, implementation
7	24/04/2021	Brigade Marine Portiere	Information, contact, awareness on the Project possible synergies, implementation

8.3 Annex III. PROTOCOLE VILLAGE

Convention de collaboration pour la mise en œuvre

du projet TPNTP :

PREAMBULE

Wetlands International Afrique Cote Occidental Golfe de Guinée (WIACO) intervient en Guinée Bissau depuis 2000; le bureau régional et le bureau de terrain à Bissau en partenariat avec les acteurs locaux ont réussi à exécuter de nombreux projets liés à la restauration, la conservation de la biodiversité avec un accent particulier sur la gestion des forêts de mangrove.

La Guinée-Bissau, avec plus de 3,000 km2, possède la deuxième plus grande zone de mangrove d'Afrique. De nombreuses mangroves ont disparu à cause de la culture du riz sur brûlis. Cependant, ces dernières années, de nombreux agriculteurs se sont tournés vers la production de noix de cajou en dehors des mangroves, tandis que d'autres ont migré vers la ville. En conséquence, des dizaines de milliers d'hectares de terres sont à nu. C'est l'occasion de restaurer les mangroves et, ce faisant, de stocker du carbone. Les digues de ceinture au niveau des rizières abandonnées aménagé dans le passé pour éviter l'intrusion de l'eau de mer salée, empêchent les mangroves de se reconstituer naturellement. Dans un projet récent, nous avons démontré que l'assainissement du sol et la restauration de l'hydrologie en ouvrant des brèches dans les digues offrent des possibilités de restauration. Ce projet TPNTP (2020 –2023) s'inscrit dans cette dynamique afin de restaurer 2,500 ha dans deux zones Cacheu et Cantanhez.

L'équipe du projet propose de collaborer avec les autorités du parc et les communautés locales pour restaurer, conserver, protéger l'habitat des mangroves et la biodiversité au sein des parcs et dans les zones périphériques. Nous signons des accords avec les villages ciblent qui régissent leur engagement dans la gestion au niveau de la périphérie. En contrepartie de leur engagement dans ce travail, les communautés vont bénéficier des alternatives durables aux moyens de subsistance par rapport aux pratiques néfastes actuelles.

Ce Protocol de collaboration entre WIACO et les villages (périphérie des parcs) engagera les communautés dans les activités de restaurations/conservation et les Activités Génératrice de Revenus (AGR).

Il a été convenu ce qui suit :

Entre :

Wetlands International Afrique Cote Occidental Golfe de Guinée (WIACO), qui a son siège à Dakar, Rue 111, Villa No 39, Zone B, et représenté par son Coordonnateur National, Monsieur Joãozinho SA, Complexe 14 de Novembre, Bairro Ajuda Fase II, Apt. 23 1031 CODEX BISSAU.

Et

Le village de ……dans le Région de ……et représenté par son Président de l'association locale…….

Les parties ci-dessous désignés comme les « parties signataires » déclarent leur volonté d'établir une collaboration pour la mise en œuvre des activités de Restauration/Conservation et des AGR dans les termes et conditions définis par la présente Convention.

Ces activités font partie du projet « To Plant or Not To Plant », projet mis en œuvre par WIACO-GB, financé par *GREENCHOICE……*

Les parties signataires se reconnaissent mutuellement la capacité légale suffisante pour souscrire cette convention et à cette fin.

1. DISPOSITIONS GENERALES

1.1. Les parties signataires acceptent de contribuer aux objectifs principaux du Projet, elles s'engagent à chercher à atteindre ses objectifs spécifiques et ses résultats et sont d'accord pour mettre en œuvre les activités prévues suivant les fonds mis en place de la présente convention.

1.2. Les parties signataires s'engagent à respecter scrupuleusement les obligations définies par cette Convention.

1.3. Les annexes à cette Convention ont la même valeur conventionnelle que la convention elle même.

1.4. Les activités font parties du projet « TPNTP » piloté par WIACO, pour lequel un comité de pilotage a été mis en place constitué par les différents partenaires du projet.

1.5. Toute modification des termes de cette Convention devra faire l'objet d'un avenant. Aucune modification des termes de la Convention ne sera validée ou applicable si elle n'a pas été approuvée au préalable par écrit par les parties signataires.

1.6. En cas de non-respect par une des parties de ses engagements, l'annulation de plein droit, totale ou partielle, de la présente Convention, pourra être prononcée trois mois après une mise en demeure par lettre recommandée avec accusé de réception.

1.7. Cette Convention entrera en vigueur au moment de sa signature et expirera à la fin du Projet.

2. RESPONSABILITES DE WIACO

2.1. WIACO s'engage à rendre disponible les fonds nécessaires pour l'exécution des activités, conformément au budget du PA

2.2. WIACO s'engage, dans la mesure de ses moyens et capacités, à accompagner les communautés bénéficiaires dans la recherche de cofinancements complémentaires ainsi que dans toute démarche de nature technique ou politique allant dans le sens de la réalisation des activités de la présente convention.

2.3. WIACO supervise la gestion technique et financière de l'ensemble activités du projet conduit par staff national du projet (WIACO-GB) et tient le bailleur informé en conséquence.

2.4. WIACO mettra en place des outils de collecte d'information pour les activités ciblées dans le village. La formation sera effectuée par WIACO-GB et les fiches des registres de collectes d'informations seront fournies à la communauté bénéficiaire.
2.5. WIACO s'engage à superviser les fonds des activités de façon efficace, transparente et responsable en respectant les obligations de gestion financière et de rapportage définies ci-après.
2.6. WIACO s'engage au rapportage technique et financier, à travers du staff du projet à niveau national, comme suit :

Trimestriellement : Staff national du projet, communique à WIACO les éléments relatifs au suivi des investissements (état des recettes, des dépenses et de la répartition du bénéfice pour l'activité commerciale). Ces éléments pourront également être sollicités à staff national par WIACO à tout moment, pour les besoins de suivi.

3. RESPONSABILITES DE LA COMMUNAUTE BENEFICIAIRE.

3.1. La communauté à travers son comité ou la Direction de l'association locale mis en place et représentée par le Président s'engage à respecter strictement les engagements pour l'ensemble des investissements que WIACO a mis à leur profit.
3.2. La communauté s'engage à céder les anciennes rizières abandonnées pour le projet TPNTP et va accompagner WIACO dans le processus de restauration
3.3. La communauté s'engage à ne plus retourner pour des raisons agricoles sur les rizières déjà mises à disposition du projet
3.4. La communauté s'engage à travers des personnes désignées à assurer le suivi, collecter et partager avec WIACO-GB l'ensemble des données.
3.5. Le comité ou la Direction de l'association locale s'engage à suivre et garder les fonds mis à la disposition des communautés exclusivement pour la réalisation des activités conformément au budget.
3.6. Le comité ou la Direction de l'association locale s'engage à informer à WIACO- GB sur l'évolution des activités et à leur donner un accès total à toutes les écritures et documents relatifs à l'exécution technique et financière des activités.
3.7. Le comité ou la Direction de l'association locale s'engage à veiller à tout conflit d'intérêt dans la gestion financière des fonds mis en place. Il s'engage en outre à se concerter avec le staff national du projet dans la mise en œuvre des activités et de notifier tout problème, toute anomalie qui pourrait impacter sur les atteintes des objectifs et la réalisation efficiente des activités.
3.8. Le comité ou la Direction de l'association locale s'engage à superviser les fonds des activités de façon efficace, transparente et responsable en respectant les obligations de gestion financière et de rapportage.
3.9. Le comité s'engage à garder les fonds des activités dans une institution financière de la place ou à défaut dans un coffre forr dont le double des clés est gardée par une autre personne en dehors du président et désignée par les membres du comité ou assemblée de l'association. Un Procès verbal attestant de cette condition doit être envoyé à WIACO -GB.
3.10. Le comité ou la Direction de l'association locale s'engage à respecter de façon stricte les conditions mises en place pour la gestion financière des activités notamment de la répartition des bénéfices ainsi que des intérêts.

4. PAIEMENTS

4.1. Tous les paiements seront faits en CFA, à partir du compte principal WIACO-GB et versés dans le compte ou coffre-fort du comité ou la Direction de l'association locale bénéficiaire par le biais de staff national avec accusé de réception du comité ou la Direction de l'association locale.

5. CAS DE FORCE MAJEURE

5.1. Les parties ne seront pas responsables pour le non accomplissement ou pour l'accomplissement défectueux de leurs obligations motivé par des circonstances de cas de force majeure

5.2. Seront considérées comme circonstances de cas de force majeure celles qui, étant involontaires aux deux parties ou étaient imprévues par elles ou toutes fois inévitables, particulièrement : les guerres, inondations, tremblements de terre, épidémies, ordres et instructions des Autorités Gouvernementales et autres situations identiques ou de caractère semblable.

6. LITIGES

En cas de contestation sur les conditions d'exécution de la présente Convention, les parties feront le maximum pour atteindre un règlement à l'amiable ; à défaut, le litige sera porté devant un arbitre désigné de commun accord.

7. RESILIATION DE LA CONVENTION

7.1. Chaque partie peut résilier la convention à n'importe quelle période de son exécution dans le cas de violation confirmée et irrémédiable des obligations conventionnelles ou légales de l'autre partie, sans préjudice de responsabilité pour pertes et dommages à payer.

7.2. WIACO se réserve le droit de rompre la présente convention et de demander le remboursement des sommes investis s'il juge le niveau d'atteinte des objectifs ou la qualité des produits insuffisants.

7.3. Le montant initial des fonds reste affecté à la communauté bénéficiaire aussi longtemps qu'elle respectera ses engagements et assurera une gestion transparente de ces dits-fonds.

7.4. La résiliation de la présente convention peut avoir lieu au cas où se vérifierait une des situations suivantes :

7.4.1. Accord mutuel des parties pour résiliation ;

7.4.2. Dénonciation de l'une des parties pour non accomplissement des obligations assumées par l'autre partie dans les termes de la présente convention ;

7.5. La partie qui prétend résilier la convention communiquera à l'autre partie, par écrit et avis de réception, les causes de sa décision et celle-ci deviendra effective après réception du courrier.

8. TRIBUNAL COMPÉTENT

Toutes les questions judiciaires doivent être résolues aux tribunaux compétents, sous la compétence du Tribunal de la Guinée-Bissau.

9. DISPOSITIONS FINALES

Les parties manifestent être en accord avec les dispositions de la présente convention, en souscrivant à son contenu et en déclarant connaître ses conditions.

Date : _____ /_____/_____

Par Wetlands International Afrique Cote Occidental Golfe de Guinée WIACO - GB

Le Coordinateur National

Par la Communauté

« Association locale»

Le Président

8.4 Annex IV. Grievance Redress Procedure

The project has the intention to solve any reasonable complaints and grievance with the relevant stakeholders. The grievance redress procedure is applicable to cases related to the project activity. If grievances come up related to the general management of the park, the stakeholder is referred to the Park headquarter office. Grievances can be addressed to WIACO office in Bissau.

Stage 1 Addressing the grief or complaint by the Mangrove restoration project

Complaints are filed with the project office and kept in records by the WIACO office in Bissau. The project aims to amicably solve the problem with the relevant stakeholder and responds to the stakeholder within 14 days through a letter. The letter is drafted in a language that the stakeholder understands.

If the project and the stakeholder mutually agree that the grief is solved an agreement written and signed by both parties that the issues has been solved, then the issue is closed and this is recorded in the files of project office. If this is not the case, the stakeholder is informed on the option of proceeding to stage 2.

Stage 2 Mediation by a neutral third party

A humanitarian third party will be asked to take a mediator role in case of issues to reach a solution that is acceptable to both the project and the stakeholder. The meeting for mediation is organized within 30 days after the stakeholder has informed the project about his intention to solve the issue through the third party mediation.

If the project and the stakeholder mutually agree that the grief is solved, an agreement is written confirming the issues is solved, the issue is closed and this is recorded in the files of project office. If this is not the case, the stakeholder is informed on the option of proceeding to stage 3.

Stage 3 Court

If the two previous stages failed to solve the grievance, the stakeholder has the option to go to court in Tribunal civil, depending on the district to which the grievance applies, and to present the issue. The magistrate's court will hear the case and rules it according his fair judgement and judgement sheet is prepared and handed over to both parties.

The result of the court ruling is archived at the project office.