PROVINCIAL PLAN FOR ADAPTATION (PPA)

TO

CLIMATE CHANGE

INHAMBANE

Process, experiences and best practices

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PROVINCIAL PLAN FOR ADAPTATION TO CLIMATE CHANGE

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LIST OF ABBREVIATIONS AND ACRONYMS

CC	Climate Change
CCA	Climate Change Adaptation
DGBS	Divisão de Gestão da Bacia do Save;
DPAP	Direcção Provincial da Agricultura e Pescas;
DPCT	Direcção Provincial de Cultura e Turismo;
DPDTA	Direcção Provincial de Desenvolvimento Territorial e Ambiente;
DPGCAS	Direccao Provincial de Gênero Criança e Acção Social;

DPIC	Direcção Provincial de Indústria e Comércio;
DPJED	Direccao Provincial de Juventude Emprego e do Desporto;
DPOP	Direcção Provincial de Obras Públicas;
DPPF	Direcção Provincial do Plano e Finanças;
DRR	Disaster Risk Reduction
ENAMMC	National Strategy for Adaptation and Mitigation of Climate Change
INGD	National Institute for Disaster Risk Management and Reduction
PLA	Local Adaptation Plan
PPA	Provincial Plan for Adaptation
PPD	Provincial Plan for Development
PTT	Province Technical Team

GLOSSARY

Adaptation – Adjustment in natural or human systems in anticipation of or response to a changing environment in a way that effectively uses beneficial opportunities or reduces negative effects.

Capacity - The combination of all the strengths, attributes and resources available within a community, society or organization that can be used to achieve agreed goals. Capacity may include infrastructure and physical means, institutions, societal coping abilities, as well as human knowledge, skills and collective attributes such as social relationships, leadership and management.

Climate change - The Inter-governmental Panel on Climate Change (IPCC) defines climate change as: "a change in the state of the climate that can be identified (e.g., by using statistical tests) by changes in the mean and/or the variability of its properties, and that persists for an extended period, typically decades or longer. Climate change may be due to natural internal processes or external forcings, or to persistent anthropogenic changes in the composition of the atmosphere or in land use".

Climate data – Quantitative and qualitative information that spans both historical and projected changes and hazards resulting from climate change.

Climate risk - The potential for climate change-related consequences where something of value (e.g., infrastructure, health and safety) is at stake and where the outcome is uncertain. Risks are often evaluated in terms of how likely they are to occur (likelihood) and the damages that would result if they did happen (consequences).

Disaster - A serious disruption of the functioning of a community or a society involving widespread human, material, economic or environmental losses and impacts, which exceeds the ability of the affected community or society to cope using its own resources.

Disaster risk - The potential disaster losses, in lives, health status, livelihoods, assets and services, which could occur to a particular community or a society over some specified future time period.

Disaster risk management - The systematic process of using administrative directives, organizations, and operational skills and capacities to implement strategies, policies and improved coping capacities in order to lessen the adverse impacts of hazards and the possibility of disaster.

Disaster risk reduction - is aimed at preventing new and reducing existing disaster risk and managing residual risk, all of which contributes to strengthening resilience and therefore to the achievement of sustainable development.

Extreme events - Extreme events are occurrences of unusually severe weather or climate conditions that can cause devastating impacts on the transportation system, communities and natural resources. We measure “extreme” depending on the event, as defined within the document. For example, common practice is to measure extreme precipitation as events that meet or exceed the 95th percentile at a particular location. In this way, an “extreme” is event is relative and place-based.

Resilience – is the ability of a system, community or society exposed to hazards to resist, absorb, accommodate, adapt to, transform and recover from the effects of a hazard in a timely and efficient manner, including through the preservation and restoration of its essential basic structures and functions through risk management.

Vulnerability - is the condition determined by physical, social, economic and environmental factors or processes, which increase the susceptibility of an individual, a community, assets or systems to the impacts of hazards.

1. INTRODUCTION

1.1. Background

In response to the impacts of climate change (CC) in Mozambique, which have been affecting negatively the development efforts of the government and its partners, the government approved the National Strategy for Adaptation and Mitigation of Climate Change (ENAMMC) in November 2012, which presents key areas of intervention to increase the country's climate resilience.

Following the launch of ENAMMC, Mozambique began producing Local Adaptation Plans (PLAs) in 2014. In this process, the Ministry of Land and Environment (MTA), which oversees the issue of CC in the country, assessed the production and implementation of the PLAs, and in 2022 produced a document on learned lessons and good practices for their implementation. Based on the limitations found in the practical implementation of the PLAs, it was decided that the country needed to move towards producing plans at the provincial level. The document justifies this idea by the fact that district plans, PLAs, are not effective for very intense and large-scale climate events that can simultaneously affect two or more districts, such as tropical storms and cyclones. Therefore, for these cases, the higher level of planning, namely the provincial and national levels, are more appropriate (MTA, 2022).

With this in mind, the government began the process of developing Provincial Adaptation Plans (PPA), having produced the first PPA for the province of Zambézia in 2022. The PPA approach should contribute to ensuring that the medium and long-term development vision, embodied in national policies and strategies such as the National Development Strategy 2035, the Agenda 2025, the PQG (2020-2024) and the province's Development Strategies, are materialized even in adverse conditions influenced by CC.

1.2. Purpose of this document

This document is part of the ongoing process of PPA production in Mozambique, and in this particular case, it reports the PPA elaboration process for Inhambane province, presenting a summary of key aspects of all process. I addition, the document also includes the key lessons learned during the process, and recommendations on best practices that may ensure a robust PPA elaboration.

2. INHAMBANE's PPA PROCESS

This is a briefing report to describe the process of elaboration of the Provincial Plan for Adaptation to Climate Change (PPA) for Inhambane. Up to date Inhambane is the third province to benefit to this program, after Zambezia and Gaza.

Field activities took place during the period from 27th May to 14th June 2024, and the process ended up with a preliminary version of the PPA, what corresponds to the Step 3 on the chain of procedures for PPA elaboration, according to the methodological Guide (Figure 1). It was developed through a largely participatory process, with contributions of technicians from different sectors within the province, and involving consultations of primary and secondary information.

Information used to feed the PPA was collected through interviews to the rural communities (particularly of most disadvantaged social stratum). Three districts were selected for sampling, namely Zavala, Panda and Massinga. In addition to the communities, some key individuals were also interviewed (local leaders, decision makers and managers within the province). This information constitutes the primary data component. To complement the primary data, other literature sources were used, including Local Adaptation Plans (PLAs), constituting the secondary data base.

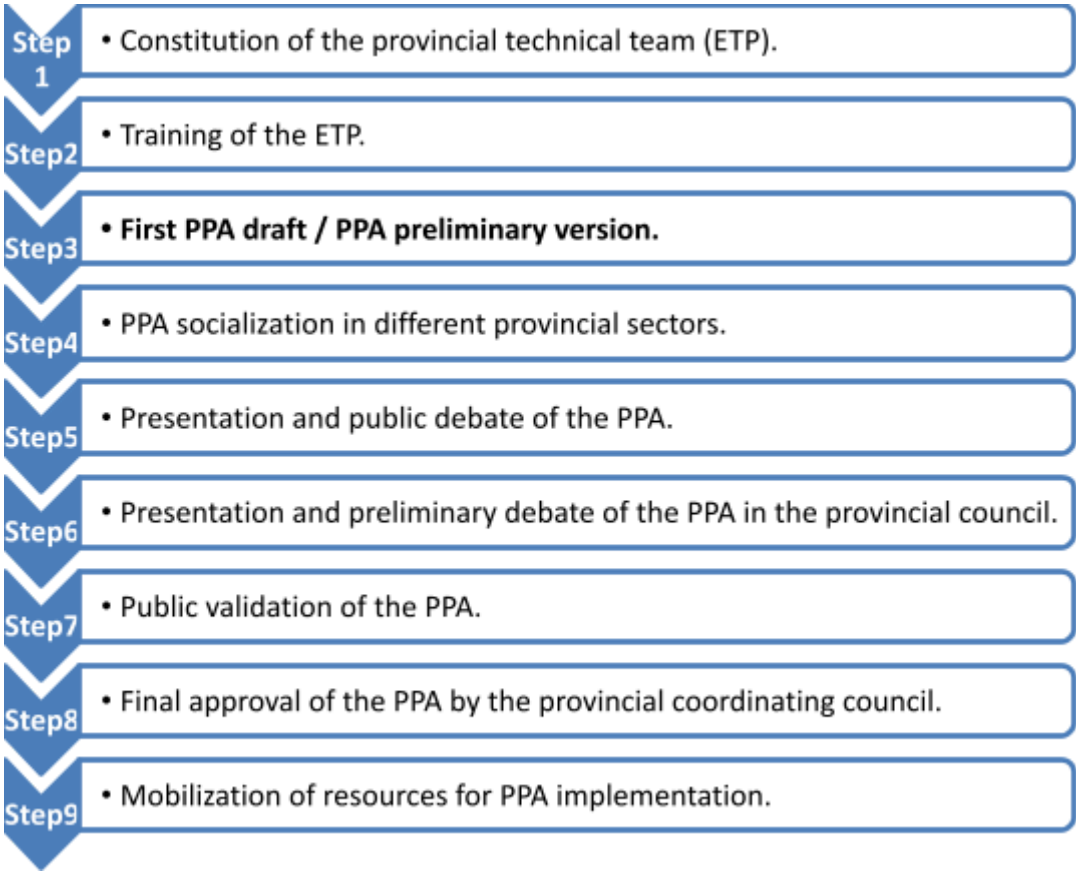

Figure 1. PPA development stages.

2.1. Data collection

The process began with a training of the Province's Technical Team (PTT), followed by a field work in the districts of Zavala, Panda and Massinga, previously chosen for sampling, for mapping the province's climate risk and vulnerability.

Primary data

The primary data consisted of information collected through interviews with previously chosen communities (group of elderly people, local leaders, group of women and youths) in the districts of Zavala, Panda and Massinga, and provincial key informants (sectorial heads and directors, etc.). These three districts were selected

to represent the province's vulnerability in the southern coastal, inland and northern regions, respectively.

Secondary data

Secondary data consisted of scientific articles, reports from public and private institutions and organizations, among other relevant documents, such as:

a) Local Adaptation Plans (PLAs) of all districts of Inhambane;
b) Strategic Development Plan for the Province of Inhambane 2018-2027;
c) Provincial Territory Development Plan of Inhambane;
d) Disaster Risk Management Plan;
e) National Territory Development Plan;
f) National Climate Change Adaptation and Mitigation Strategy;
g) PPA Methodological Guide;
h) Among others.

2.2. Tools for data collection and analysis

Data collection was performed using five (5) tools of Climate Vulnerability and Capacity Analysis (CVCA) as described below. Collected data were analyzed and harmonized to define the PPA's vision, strategic objectives and adaptation actions, implementation strategies, and the monitoring and evaluation indicators.

1) **Historical profile:** The analysis of the historical profile allowed the identification of the main climatic and environmental events that marked the province's history, as well as the classification of the province's level of exposure to extreme climate phenomena;

2) **Vulnerability matrix**: With the vulnerability matrix, the main economic and subsistence activities of communities were analyzed, and the threats to which they are subject, as well as the adaptation measures taken at local level to face these threats;

3) **Risk mapping**: With risk mapping, most vulnerable areas or communities to climate threats were spatially identified;

4) **Institutional analysis:** Through institutional analysis, the main actors operating in the communities, their type of intervention and the synergies between the different actors were mapped;

5) **Seasonal calendar:** With the seasonal calendar, the intra-annual variation of main climate and environmental threats was analyzed, including how they affect the different activities carried out by communities.

2.3. Training of the Provincial Technical Team

The training of the PTT (Figure 2) took place in the Inhambane city, where the methodology for PPA elaboration was covered, starting with the presentation of basic concepts on climate change, followed by the tools for data collection and analysis, and finally the harmonization of information for the PPA compilation.

The training was guided by national representatives (Table 1) from the following institutions:

- Universidade Eduardo Mondlane / Faculdade de Agronomia e Engenharia Florestal (UEM/FAEF);
- Ministério da Terra e Ambiente / Direcção Nacional de Mudanças Climática (MTA/DMC).

Table 1. National Technical Team

Name	Institution
Jone Lucas Medja Ussalu	UEM/FAEF
Sílvia Natal David Maússe Sitoe	UEM/FAEF
Cláudio dos Santos Quenhe	DMC/MTA
Rosalina Naife	DMC/MTA

And at the provincial level, the PTT was composed by technicians representing the following institutions (Table 2):

- Serviço Provincial do Ambiente (SPA);
- Administração Regional de Águas do Sul / Divisão de Gestão da Bacia do Save (ARA Sul/DGBS);
- Serviço Provincial de Economia e Finanças (SPEF);
- Serviço Provincial de Actividades Económica (SPAE);
- Serviço Provincial de Infra-estruturas (SPI);
- Instituto Nacional de Gestão e Redução do Risco de Desastres (INGD);
- Direcção Provincial de Desenvolvimento Territorial e Ambiente (DPDTA);
- Direcção Provincial de Obras Públicas e Habitação (DPOPH);
- Direcção Provincial de Agricultura e Pescas (DPAP);
- Direcção Provincial de Indústria e Comércio (DPIC);
- Direcção Provincial de Género, Criança e Acção Social (DPGCAS);
- Direcção Provincial de Saúde de Inhambane (DPSI); e
- Instituto Nacional de Meteorologia (INAM).

Table 2. Provincial Technical Team

Name	Institution
Afonsina Fernando	SPA
Benildo Luis Guambe	INAM, IP
Dias Constantino	ARA-SUL, IP/DGBS
Gildo Carlos Sitoe	DPSI
Humberto Titos Américo Dombe	SPEF
Jenebaio Rungo Nhanala	DPOPI
José Alberto Lichucha	SPAE
Julião Marcelino Machava	DPDTA
Leonel Carlos Alfredo Guiamba	SPI
Maurício Albino Feniosse	INGD
Nelson Paulo Zunguze	DPAP
Osvaldo J. M. Massunda	DPICI
Pascoal Lisboa	SPA
Ricardo N. R. Macuacua	DPGCAS

Figure 2. Image illustrating a moment of the PTT training, for PPA elaboration.

2.4. Field Work

As mentioned above, three (3) districts of Inhambane province were selected for data collection in the communities, including sectorial representatives (key informants). The district of Zavala was the first to benefit from the field work, where the community of Maculuva was selected for interview (Figure 3). Over this district, several problems related to climate change effect were highlighted, with emphasis on tropical cyclones and droughts.

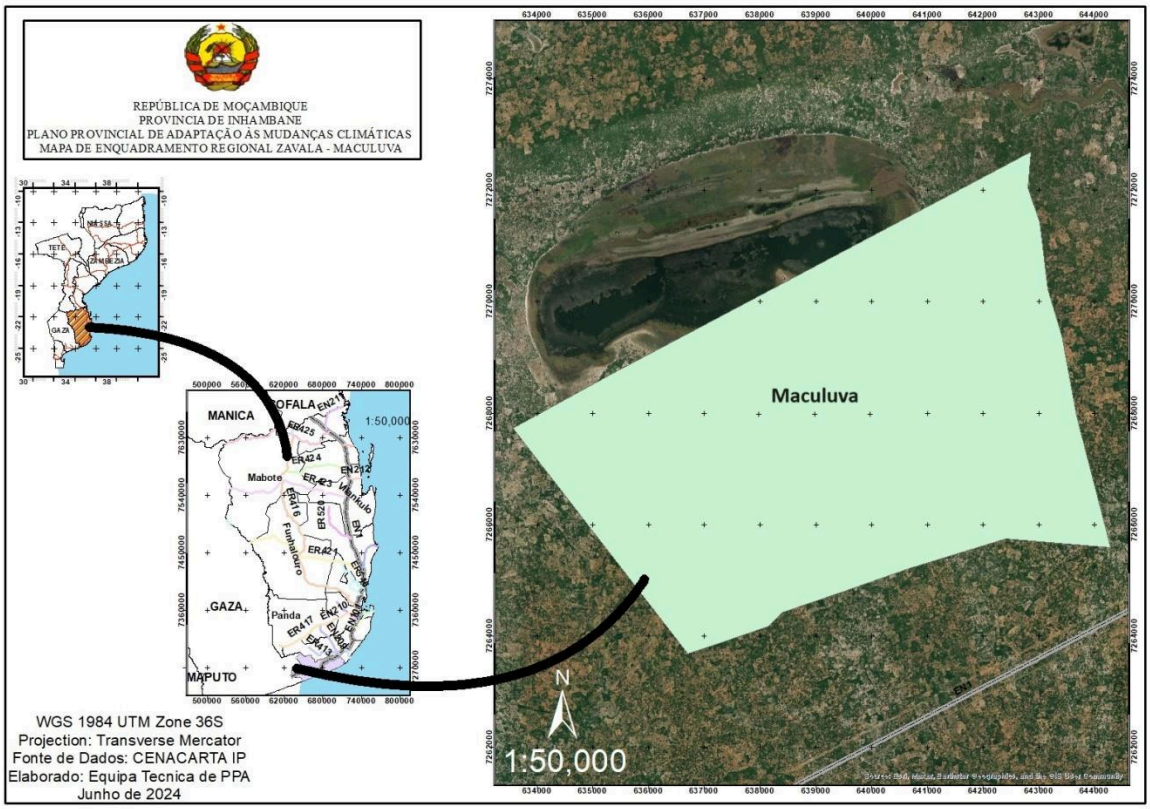

Figure 3. Map indicating the geographical location of Maculuva community, Zavala district.

Figure 4. Image showing the data collection moment, with the group of women, in the community of Maculuva, in Zavala district.

Panda district was the second to benefit from field work. The local government led the PTT to the village of Inhassune (Figure 5). In this district, problems related to drought and isolated flood areas were highlighted, including the main adaptation activities underway in the community.

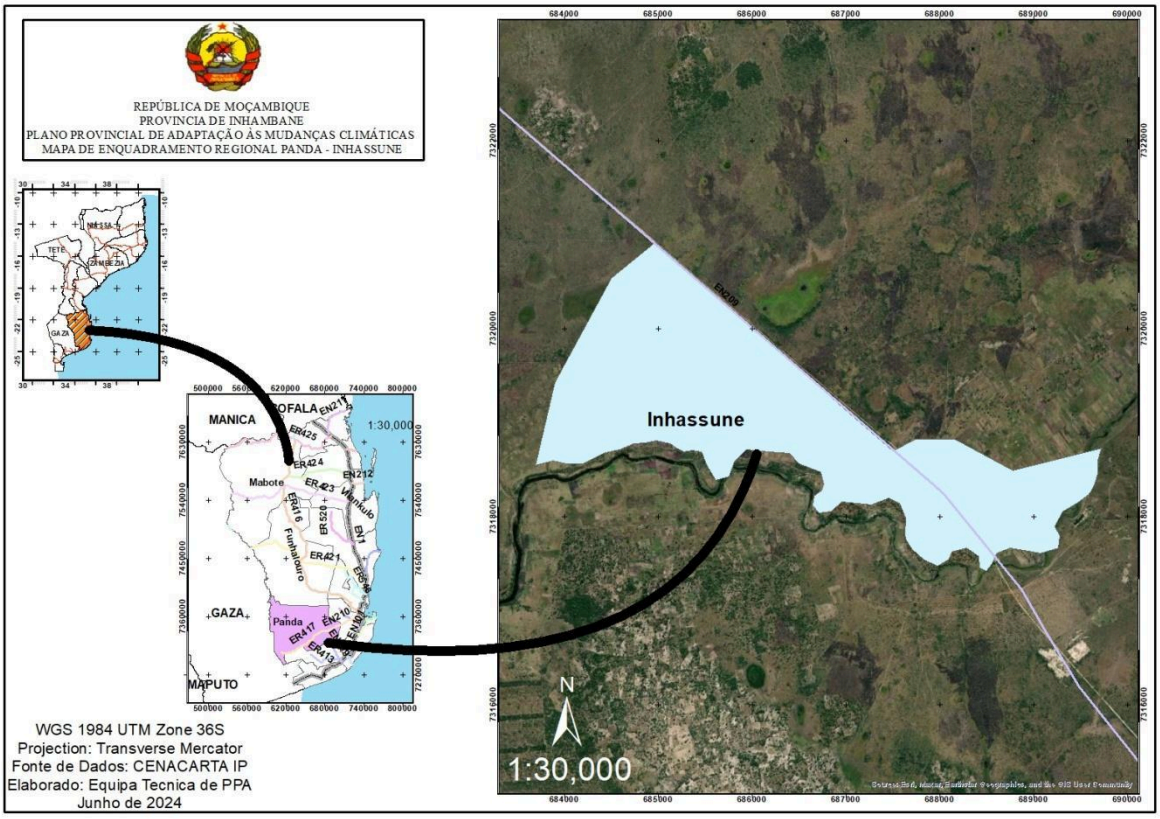

Figure 5. Map indicating the geographical location of Inhassune community, Panda district.

Figure 6. Image showing the data collection moment, with the group of men, in the community of Inhassune, in Panda district.

Finally, the PTT visited the district of Massinga, in the community of Mahoche (Figure 7). In general, the district suffers from the effects of tropical cyclones, followed by droughts.

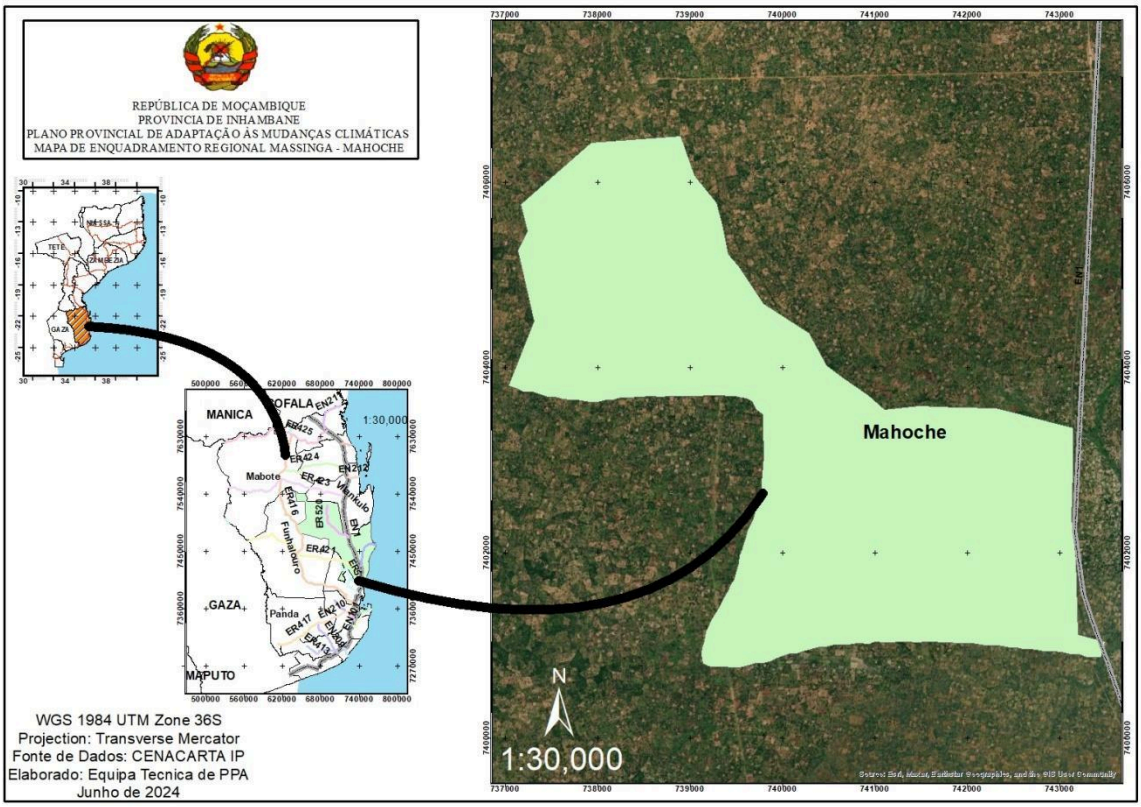

Figure 7. Map indicating the geographical location of Mahoche community, Massinga district.

Figure 8. Image showing the data collection moment, with the group of men, in the community of Mahoche, in Massinga district.

Figure 9. Image showing the data collection moment, with the Coordinator of the Local Committee of Disaster Risk Management and Reduction (CLGRD), in the community of Mahoche, in Massinga district.

2.5. Main Climate Risks

The main climate risks in Inhambane province are tropical cyclones, droughts and isolated floods. Tropical cyclones, which are often accompanied by heavy rain and strong winds, cause flooding and destruction of infrastructure, penetrating the province and affecting coastal districts with greater intensity, and weakening as they continue moving towards the province's inland. On the contrary to cyclones, droughts intensify from the coast to the interior, being stronger in the districts of Mabote, Funhalouro, Panda and Govuro. Floods occur selectively with a non-uniform spatial distribution.

Table 3. Climate risk and vulnerability.

Climate event	Vulnerable districts	Impacts
Tropical cyclones	Coastal districts: Vilankulo, Inhambane, Inharrime, Massinga, Govuro, Inhassoro and Zavala.	- Destruction of infrastructure. - Flooding.
Droughts	Parts of districts: Mabote, Funhalouro, Panda, Massinga, Vilankulo, Inhassoro, Govuro, e Zavala.	Low productivity, hunger.
Flooding	Parts of districts: Govuro, Mabote, Maxixe, Panda, Zavala and Inharrime.	- Losses of agricultural productivity. - Destruction of infrastructure.

2.6. Vision and Strategic Objectives

In response to the identified climate risks, the PTT have defined five (5) strategic objectives based on the following vision: **"Inhambane adapted and resilient to climate change, ensuring sustainable economic development and social well-being"**. To achieve the defined strategic objectives, about 48 strategic actions were proposed (refers to the Annex 1), with a total budget of about 31,653,070,340.00 MT, which are to be implemented by various public and private

sectors, including cooperation partners. Those actions must be integrated into the different provincial planning instruments.

3. EXPERIENCES / KEY LESSONS

During the development of Inhambane Provincial Adaptation Plan, the following key lessons have been learned. These lessons can help streamline the process and ensure a successful development of future PPA:

a) It is important to conduct a pilot study based on literature review of relevant strategic documents of the province, before the PPA field work process. This should be done by the National team leader from Academia.
b) The PTT must be composed by active and well experienced members, from different vulnerable sectors of activities. A weak PTT can lead to poor PPA.
c) All PTT members should be involved in the field data collection in the different sampling districts – splitting the group should be avoided. All team members must have a complete picture of the province vulnerability, for relevant contributions on the PPA.
d) The PTT motivation and efficiency is dependent on financial incentive – without incentive, engagement on field work including synthesization of information for feeding the PPA can be compromised, resulting in delays of the process, late feedback and review.
e) It is important for the team to use online platforms for word processing to synchronize the PPA elaboration and guarantee a structured review and feedback process, ensuring that contributions, comments or suggestions from any team member are submitted, seen at any time and addressed by everyone.
f) There is a need to involve or consult with the private sector, NGOs, cooperation partners and academia, and members of the provincial assembly during the PPA development process.
g) Besides the PPT, it is important that the sectorial decision makers are also involved on PPA trainings so that they understand its purpose and can follow along its elaboration. This can ensure the easy integration and implementation of the strategic actions.

4. BEST PRACTICES

From above lessons, the following best practices are recommended:

a) **Good selection of the PTT:** The PTT members should be chosen based on their competence. This task is the responsibility of the MTA/DMC, SPA/DPTA. Members that have been previously engaged on PLA elaboration should be given priority.
b) **Adequate team sizing:** Ensure that the team has a sufficient number of members to carry out data collection and processing of different PPA components, without overloading anyone. This may require more members from the most vulnerable sectors in the province. A minimum of 10 and maximum of 15 members for the PTT is considered good.
c) **Continuous engagement:** Ensure that all team members are committed from the beginning by actively participating in the induction/capacity building seminars, contributing with their knowhow and experience on their respective sector, during the PPA development.
d) **Effective communication:** Clear communication channels need to be established from the beginning, and the team kept informed about the work plan and the importance of active participation throughout the process.
e) **Efficient work distribution:** Organize and distribute the work in a way that member potentialities are well explored for the quality and flow of the work. For example, some members may be suitable on mapping, others on climate risk/vulnerability analysis, and others on budgeting of outlined strategic actions, etc.
f) **Motivation:** Develop mechanisms to keep the team motivated through either effective and transparent communication, or sort of financial incentive during the period of field work and of the preliminary PPA.
g) **Deadlines:** Set clear deadlines for each step of the process and ensure that team members understand the importance of meeting the deadline.

h) **Ethics:** Promote a culture of open communication among team members, respecting different opinions, and encouraging them to share their point of views and suggestions in a constructive manner.

i) Gender equality: Consider gender equality in all process of PPA elaboration, enabling good environment for women to freely express their opinion**.** For example, on field data collection, men and women may be interviewed separately.

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ANNEX

Anexo 1. Objectivos e acções estratégicos do PPA (2024-2034)

N/O	Objectivo Estratégico (OE)	Acções Estratégicas
OE 1	Aumentar a resiliência e a sustentabilidade do sector agrário	1.1. Adquirir e alocar sementes melhoradas; 1.2. Promover a produção local de semente; 1.3. Montar estufa com sistema de rega gota a gota; 1.4. Adquirir atomizadores para o tratamento químico de cajueiros; 1.5. Disseminar técnicas de maneio de pastagem e produção de foragem; 1.6. Melhorar a vigilância epidemiológica e controlo de doenças de animais; 1.7. Promover a agricultura de conservação; 1.8. Promover a aquacultura; 1.9. Promover o maneio comunitário de recursos florestais e o reflorestamento dos mangais; 1.10. Construir celeiros melhorados para reduzir as perdas pós-colheita; 1.11. Estabelecer parceria com Universidades, ONGs, Centros de pesquisa para promover a inovação e disseminação de tecnologias; 1.12. Instalar postos pluviométricos; 1.13. Facilitar o acesso ao crédito agrário; 1.14. Implementar programas de melhoramento genético para desenvolver raças mais resistentes a doenças e condições adversas; 1.15. Disseminar tecnologias de processamento de alimentos; 1.16. Sensibilizar os pescadores para diversificar as actividades de modo a reduzir a pressão sobre os recursos marinhos; 1.17. Promover limpezas e reabilitação de canais de rega e drenagem;
OE 2	Aumentar o acesso e a capacidade de captação, armazenamento, tratamento e distribuição da água.	2.1. Construir e reabilitar sistemas de abastecimento de água multi-funcionais; 2.2. Construir e reabilitar reservatórios escavados, represas; 2.3. Promover a construção de cisternas e caleiras em infra-estruturas públicas e privadas; 2.4. Promover a construção de estações de tratamento de água residuais; 2.5. Construir fontes dispersas de abastecimento de água.
OE 3	Reforçar a capacidade de preparação e de resposta a riscos climáticos.	3.1. Adquirir e distribuir redes mosquiteiras; 3.2. Promover campanhas de pulverização intra-domiciliar; 3.3. Sensibilizar as comunidades, sobre o saneamento do meio (eliminação de focos de mosquitos); 3.4. Promover o processamento de frutas silvestres para produção de Jam, licor e outros; 3.5. Elaborar e implementar planos de ordenamento territorial; 3.6. Promover a criação de áreas verdes nas escolas, centros urbanos e nas comunidades; 3.7. Promover a prática de apicultura nas comunidades;

		3.8. Capacitar os Comités Locais de Gestão e Redução do Risco de Desastres e dos Recursos naturais em questões de género, maneio das biodiversidade e Mudanças Climáticas; 3.9. Avaliar o risco de destruição das infra-estruturas consideradas criticas ou essenciais em termos económicos, sociais e ambientais. 3.10. Mapear as zonas de risco a desastres, colocação de sinais de proibição da construção de infra-estruturas públicas e privadas em zonas de alto risco climático; 3.11. Consolidar os sistemas de informação e monitoria dos eventos extremos, aquando da sua ocorrência, bem como os sistemas de alimentação e circulação de informação em tempo real do local afectado para o nível provincial e vice-versa; 3.12. Reforçar o sistema de aviso prévio de modo a minimizar os efeitos negativos dos fenómenos climáticos; 3.13. Actualizar e implementar Planos de Contingências anuais; 3.14. Aprimorar e harmonizar o uso de metodologias de avaliação preliminar de danos e análise de necessidades após o impacto de um evento extremo; 3.15. Reforçar a capacidade de prontidão, resposta, recuperação e reconstrução resiliente.
OE 4	Aumentar a capacidade adaptativa das pessoas vulneráveis.	4.1. Capacitar mulheres do sector informal em matéria de empreendedorismo e gestão de negócios; 4.2. Integrar mulheres, pessoas com deficiência e jovens em projectos como massa laboral; 4.3. Garantir o acesso ao DUAT para as mulheres, pessoas com deficiência e jovens; 4.4. Capacitar pessoas vivendo nas zonas vulneráveis em matéria de mudanças climáticas e violência baseada no género, salvaguardas sociais e ambientais, práticas discriminatórias contra crianças, mulheres, pessoas idosas e pessoas com deficiência; 4.5. Adquirir e distribuir meios de compensação e de vida aos grupos mais vulneráveis.
OE 5	Promover a construção de Infra-estruturas resilientes.	5.1. Construir unidades sanitárias resilientes às mudanças climáticas; 5.2. Construir aterros sanitários para gestão de lixo hospitalar e resíduos sólidos; 5.3. Construir vala de drenagem, muro de protecção, gabiões para combater a erosão dos solos e inundações;

		5.4. Construir salas de aula resilientes e com sistema de colecta e armazenamento de águas pluviais; 5.5. Reconstruir pontes e melhoramento de vias de acesso; 5.6. Adquirir meios para melhorar o saneamento do meio (camiões de limpeza de lixo comum e de esgotos, tractor).