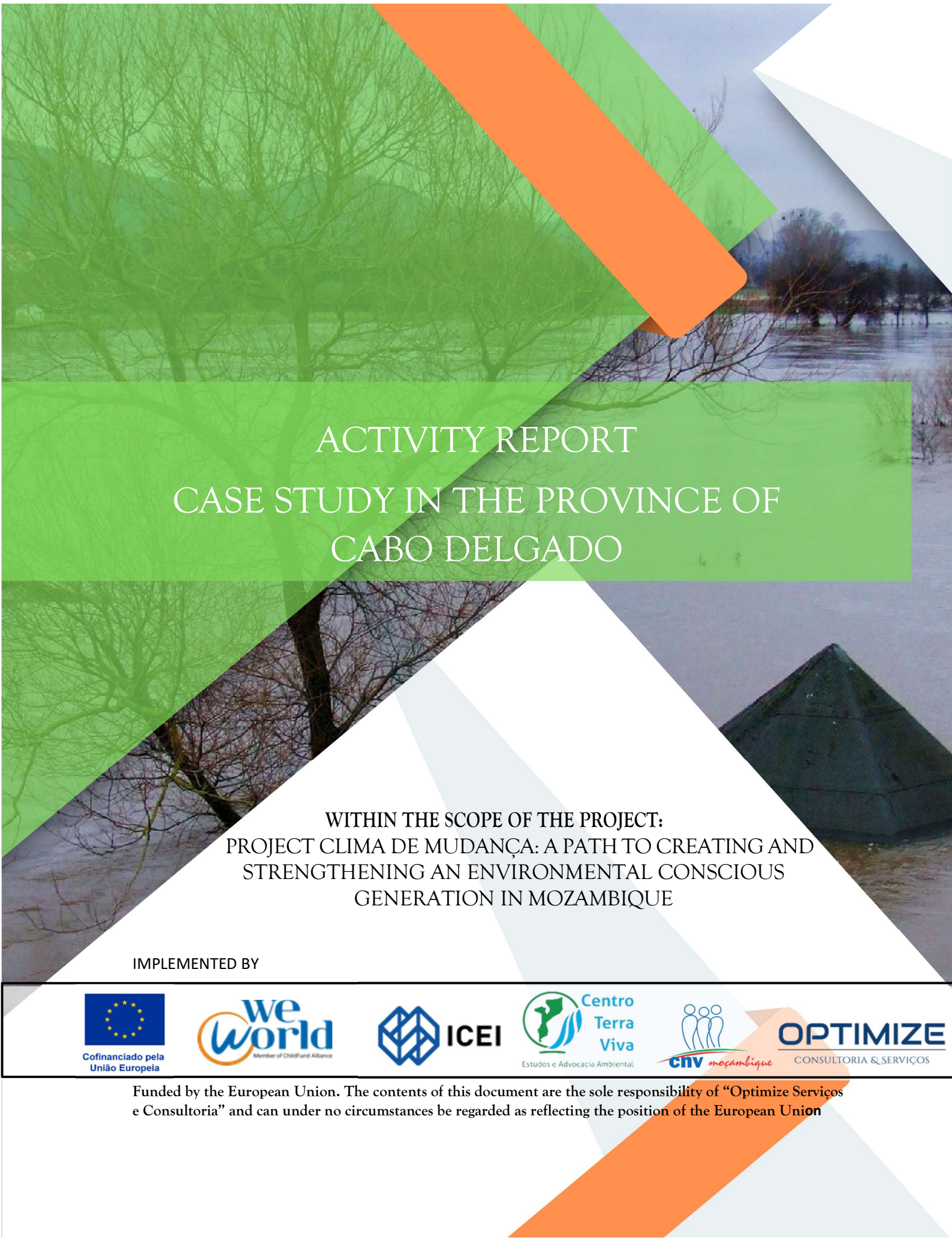

ACTIVITY REPORT

CASE STUDY IN THE PROVINCE OF CABO DELGADO

WITHIN THE SCOPE OF THE PROJECT:

PROJECT CLIMA DE MUDANÇA: A PATH TO CREATING AND STRENGTHENING AN ENVIRONMENTAL CONSCIOUS GENERATION IN MOZAMBIQUE

IMPLEMENTED BY

Cofinanciado pela União Europeia

Funded by the European Union. The contents of this document are the sole responsibility of "Optimize Serviços e Consultoria" and can under no circumstances be regarded as reflecting the position of the European Union

CONTENTS

LIST OF FIGURES

LIST OF TABLES

1. CONTEXTUALIZATION

1.1. GLOBAL AND AFRICAN CONTEXT

Despite two decades of intergovernmental commitments, for sustainable development, to keep global warming below 1.5 or 2.0 degrees Celsius, CO2 levels are now 60% higher than they were in 1990. Even if governments meet their Intended Nationally Determined Contributions (INDCs), temperatures will rise between 2.2 and 3.7 degrees Celsius. The impacts of climate change are already causing irreparable damages to ecosystems and threatening the implementation of the 2030 Agenda for Sustainable Development, resulting in even more severe impacts if current growth trajectories are maintained (Huyer, 2016).

Africa is likely to face the impacts of climate change sooner than other regions and therefore inclusive adaptation measures are urgently needed on the continent (Bassini & Giordano, 2019).

According to FAO, by 2050 global population will have increased by a third, in a period of just 35 years. Population growth will increase the demand for food and to meet the growing demand for food and ensure food security, agricultural production will need to increase by 60% by 2050, which requires an inclusive agricultural transformation with the inclusion of youth and women. (Kenya Adaptation Plan, 2019)

1.2. NATIONAL CONTEXTS

Due to its geographical location, Mozambique is considered to be at high risk of being affected by climate change. The country is located along the inter-tropical convergence zone that is responsible for rainfall patterns in southern Africa. The long stretches of low-lying coastal areas (about 2,700 kilometers long) make Mozambique one of the African countries most vulnerable to climate change. Mozambique has over 100 rivers, the main ones being: Rovuma, Lúrio, Zambezi, Pungue, Búzi, Gorongosa, Save, Limpopo, Incomati and Maputo.

These rivers drain about 208 km^3 of water rich in nutrients into coastal waters. About 80% of this water enters the ocean from Sofala Bank in central Mozambique. The Zambezi River, the largest river in East Africa, alone contribute 67% of the total river discharge throughout the country (Da Silva, 1982). At

the same time, is expected that cyclone activities in the Indian Ocean increase as a result of rising sea surface temperatures (Lal, 2001; McDonald et al., 2005), which are likely to result in widespread flooding in the region. As a result of changes in temperature and precipitation patterns, Mozambique ranks high on the climate change index based on annual and seasonal temperature and precipitation indicators (Baettig.et.al, 2007).

Mozambique's vulnerability to climate extremes is exacerbated by extreme poverty. (Ribeiro.Natasha.et.al, 2020) Populations living along coastal areas are becoming increasingly vulnerable to rising sea levels and coastal erosion. Climate change is expected to result in the destruction of homes and the depletion of fish stocks along coastal areas, which are crucial to the livelihoods of coastal communities. Natural disasters across the country vary depending on the geographical position of the provinces.

Floods and droughts occur in most parts of the country however, droughts are more frequent in the south, while floods are more frequent in central and southern Mozambique and, Cyclones affect all coastal regions of the country. Climate change, through its increased frequency of natural disasters, has brought considerable socio-economic problems to the country. The lack of capacity and financial resources to respond quickly to natural disasters has exacerbated the impacts of climate change.

Furthermore, more than 60% of Mozambique's population lives below the common international poverty line (i.e. US$1 per day) and is unable to cope with the impacts of natural disasters. Thus, the most vulnerable and poorest sections of the population have been most affected by the impacts of climate change. The three most important economic sectors in Mozambique are agriculture, livestock and fisheries. Approximately 45% of the territory has potential for agriculture (Marzoli, 2007) and employs (formally and informally) more than 80% of the active population.

Studies also predict that due to climate change, rainfall will become more erratic. This poses a threat to food security, since Mozambique's agriculture is predominantly of subsistence and rain-fed. Ludi et al (2015) also predict that Mozambique will be one of the African countries that will lose cereal production potential by 2080. This would further undermine the achievement of Mozambique's poverty reduction targets, given that cereals (mainly maize) are very important poverty-related food commodity in the country.

On the social front, poverty and unemployment would increase, while economically, agriculture's contribution to Mozambique's GDP and export earnings would also decline. Equally important is the threat posed by climate change. (i.e. rising temperatures) pose to fish stocks that are important to coastal communities.

Although migration to urban areas is increasing, two-thirds of the population still resides in rural areas with limited access to electricity, drinking water and sanitation. The increased frequency and severity of intense storms, droughts and floods are likely to exacerbate these development challenges. For example, El Niño conditions in 2015–2016 caused the worst drought in 35 years, reducing food availability by 15%. Drought-induced food insecurity was exacerbated in 2017 with the occurrence of Cyclone Dineo and in 2019 with the occurrence of Cyclone IDAI, which damaged crops and destroyed infrastructure (USAID, 2021).

1.3. GEOGRAPHICAL BACKGROUND OF THE TARGET DISTRICTS

The province of Cabo Delgado is located in the northern region of the country, located at the border coordinates 10° 29'12"N and 14° 01'00"S Latitude and 40° 35'50"E 35° 58'00"W Longitude, with a surface area of 82,625 km², corresponding to 10.34% of the national surface area and with approximately 4,760 km² of inland waters.

It's bordered by Rovuma River (which serves as a natural border with the United Republic of Tanzania, over a distance of approximately 250 km) to the North. By Lúrio River to the South, by Lugenda, Luambeze to the West, by Ruaca and Mewo rivers (which separate it from the province of Niassa), to the West and by the Indian Ocean (which bathes the entire eastern coast over a distance of 430 km) to the East.

The province of Cabo Delgado is divided into seventeen districts (17) – Ancuabe, Balama, Chiúre, Ibo, Macomia, Mecúfi, Meluco, Metuge, Mocímboa da Praia, Montepuez, Mueda, Muidumbe, Namuno, Nangade, Palma, Pemba, Quissanga – 56 administrative posts, 134 localities, and 1,044 settlements, the provincial capital Pemba and seven (7) municipalities: Chiúre, Mocímboa da Praia, Balama, Ibo, Montepuez, Mueda and Pemba

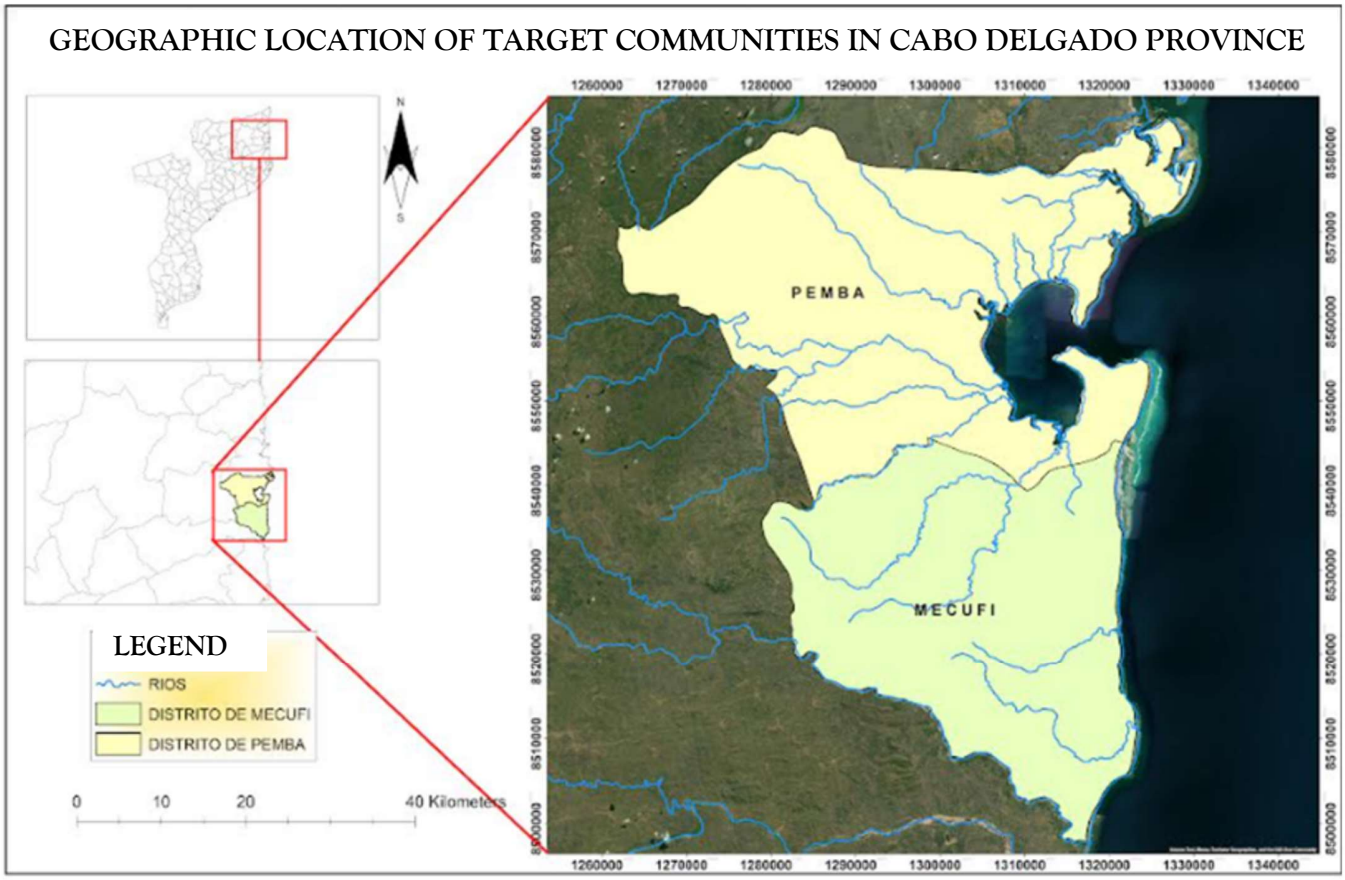

Figure 1: Geographic location of target communities

The city of Pemba, located on the northern coast of Mozambique, is the capital of the province of Cabo Delgado. It is a region of extreme geographical and economic importance due to its coastal location and proximity to the Quirimbas Islands Nature Reserve. However, the city of Pemba also faces significant challenges related to climate change, such as rising sea levels and the intensification of extreme weather events such as cyclones. These weather events have a direct impact on coastal communities, affecting food security, infrastructure and the local economy.

The Mecúfi district is located north of Pemba and borders the Indian Ocean. It is a predominantly rural area, with communities dependent on local natural resources such as agriculture, fishing and forestry-related activities. Like Pemba, the Mecúfi district also faces challenges related to climate change. Communities in Mecufi may be particularly vulnerable to the effects of climate change due to their dependence on natural resources, as well as their lack of access to information and resources to adapt to these changes.

2. INTRODUCTION

The Project *Clima de Mudança*, co-funded by the European Union, arises in response to the need to create and consolidate environmental awareness among young people, especially women, to understand that everyone's actions are important for the environment and climate change.

This project is led by a consortium of internationally renowned organizations, composed of WeWorld-GVC, the Institute for International Economic Cooperation (ICEI), Centro Terra Viva (CTV) and the Conselho Nacional de Voluntariado (CNV). Its main objective is to consolidate good environmental governance in Mozambique, with a special focus on mobilizing and empowering young people to actively participate in political debates, decision-making and natural resources management.

One of the essential activities of this project is to carry out a comprehensive case study, which focused on the coastal ecosystem of Cabo Delgado province, which is one of the most vulnerable areas to climate change in Mozambique due to its coastal location and the frequent occurrence of extreme weather events such as tropical cyclones and floods.

This case study was carried out in order to identify the complex interactions between climate change and natural disasters, as well as in analyzing community management of natural resources in the region.

Specifically, the study aims to:

Explore and highlight the link between climate change and natural disasters in Cabo Delgado province with focus on two (2) local communities (one rural and one urban) with an emphasis on:

1. Natural disasters and consequent vulnerability conditions of target communities;
2. Community management of natural resources in target communities;
3. Community mechanisms (prevention and mitigation) of climate disasters and their application by the population/authorities.

- Identify the participatory environmental resources management structure implemented by the target communities and possible practical actions to improve them and the stakeholders involved;
- Evaluate the functioning of local disaster risk management and natural resources committees;
- Identify and evaluate environmental risks adaptation mechanisms present in communities and applied by public authorities;
- Explore possible differences in the perception and management of natural resources related to belonging to urban and rural contexts; and
- Promote and raise awareness among populations through an advocacy document on the importance of participatory management, preservation and sustainable use of natural resources in local communities

3. METHODOLOGY

To the realization of this study, the following activities were carried out:

FASES	ACTIVITIES CARRIED OUT
Kick-off Meeting	• Meetings were held to align technical aspects and establish working rules with We-World GVC team
Preparation of Questionnaires	• Questionnaires and tools for data collection developed. • Questionnaires reviewed and approved by We-World GVC.

Field Data Collection	• The questionnaires were uploaded to Kobo Toolbox. Surveyors were trained and practical tests of the questionnaires were carried out. • Data collected in selected communities through interviews and inquests of 120 young people, adults and other key actors. • Focus groups carried out at rural and urban communities level, Milapani community – Mecúfi district and Chibuabuare neighborhood– Pemba city respectively.
Data Cleaning and Analysis	• Cleaning and analysis of quantitative and qualitative data.
Preparation of Case Study Report and Advocacy Document	• The case study report and advocacy document were prepared, the aim of which is to raise awareness among the target audience about climate change and natural resource management.

Table 1: Activities program

The study focused on two distinct communities: a rural community (Milapani community – Mecufi district) and an urban community (Pemba city – Chibuabuare neighborhood) in Cabo Delgado. Between 2 and 6 October 2023 a team of interviewers went to the Mecúfi district and Pemba city with the aim of interviewing 120 members of the selected communities defined by age and gender, as well as representatives of key sectors in rural area (District Services for Economic Activities, District Planning and Infrastructure Services, District Women's Health and Social Action Services, Natural Resources Management Committees and Community Leaders) and in the urban area (Provincial Delegation of the National Institute for Disaster Risk Reduction and Management, National Institute of Meteorology (INAM) – Pemba Delegation, National Administration of Conservation Areas-Pemba, Provincial Delegation of the Institute of Communication Social-Pemba, Provincial Directorate of Land and Environment of Cabo Delgado, Provincial Services of Economic Activities of Pemba, Municipal Council of the City of Pemba and Provincial Planning and Infrastructure Services of Cabo Delgado) in order to gather information on perceptions, and actions related to climate change.

Data collection was carried out using kobo toolbox, an application that allows data collection in the field using smartphones.

In addition to data collection through surveys, two focus group meetings were held, one in Mecúfi on October 3rd and one in Pemba on October 6th. The following stakeholders participated in these meetings:

- Mecúfi: District Services for Economic Activities, District Planning and Infrastructure Services, District Women's Health and Social Action Services, Natural Resources Management Committees and Community Leaders and 7 young people.
- Pemba: Provincial Delegation of the National Institute for Disaster Risk Management and Reduction - Cabo Delgado (INGD), National Institute of Meteorology (INAM) - Pemba Delegation, National Administration of Conservation Areas – Pemba (ANAC), Provincial Delegation of the Institute of Social Communication - Pemba, Provincial Services of Economic Activities of Pemba, Municipal Council of the City of Pemba 1 young person and a local Radio.

TARGET GROUP PROFILE

The target group of the survey was young people and adults, with an average age of 32 and a median age of 26 years, among them 65 females (54.17% of the interviewees), and 55 males (45.83% of the interviewees) in rural and urban areas. Among the 120 respondents, 60 people lived in rural areas, and 60 in urban areas, thus making a 50-50% ratio.

The target group was composed mainly of farmers, students and domestic workers were 59 of the respondents were farmers (98.30% of which were from rural areas and the other 1.7% from urban areas, making up 49.15% of the total number of respondents), 21 were domestic workers, all from urban areas, making up 17.5% of the total number of respondents. 12.5% of the respondents were students from urban areas, making up 15 people and the remaining 20.84% were businessmen, fishermen, health technicians among others.

Among the interviewees 62.5% or 75 people had primary education, 56 people from rural areas and 19 from urban areas, and 38 people (31.66% of the interviewees) had secondary education, 34 people from urban areas and 4 from rural areas, and only 5.84% (7 people) who live in rural areas have higher education.

Among the interviewees, 33 people were displaced and/or resettled, constituting 27.5% of the number of interviewees, 15% from urban areas and 17.5% from rural areas, and the remaining 72.5% did not suffer any type of resettlement and/or displacement.

4. RESULTS

Based on the survey carried out in rural and urban areas, it was possible to briefly collect information from the target group, which, after analysis, resulted in the following important data.

4.1. MAIN ECONOMIC ACTIVITIES

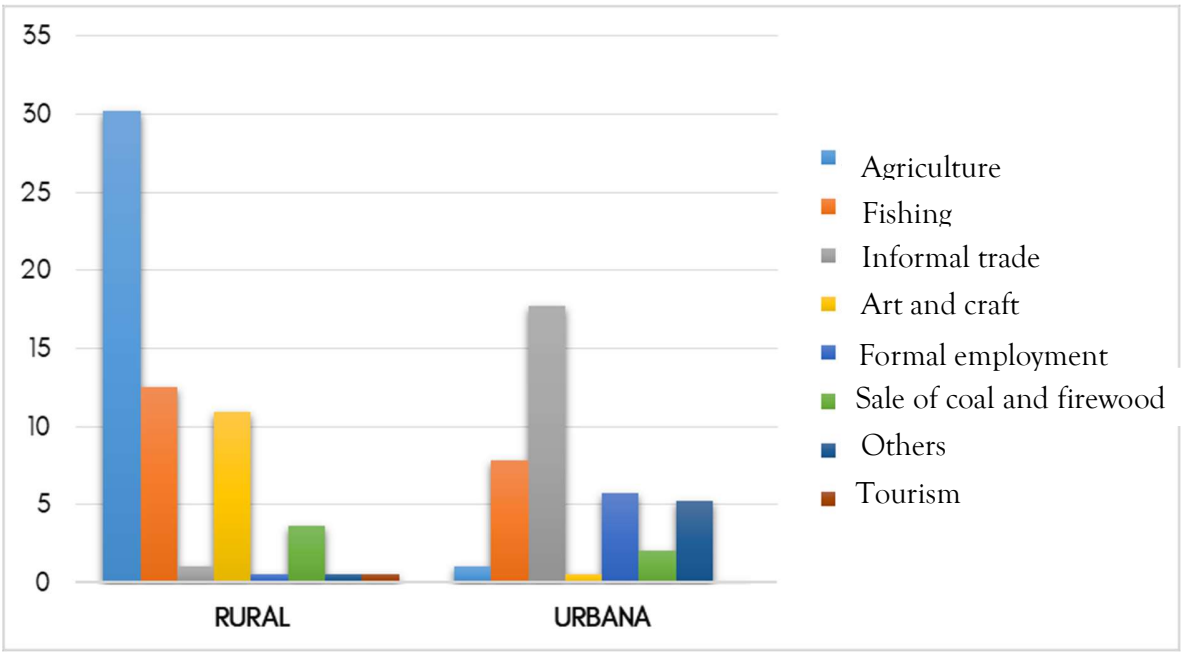

Figure 2: Main economic activities at urban and rural areas

Among the main economic activities, agriculture stands out as the main income generating activity in the communities, being practiced by 60% of the population interviewed in rural areas and 2% in urban areas, followed by fishing practiced by 26% of the respondents in rural areas and 16% in urban areas. From the respondents in urban areas, 36% practice informal trade and only 2% practice the same activity in rural areas; arts and crafts are practiced by 22% of people in rural areas and 2% in urban areas are in informal employments and tourism. There are also other activities such as formal work and the provision of services.

In the same topic answered by key actors, of the total number of respondents, both rural and urban, fishing and crafts were identified as the main income-generating activity.

4.2. VULNERABILITY FACTORS AND IMPACTS

4.2.1. Location

The coastal communities of Pemba and Mecúfi are becoming increasingly vulnerable to rising sea levels and coastal erosion. Climate change is expected to result in the destruction of homes and the depletion of fish stocks that are crucial to the livelihoods of coastal communities.

The data shows that most people have been and are being hit by tropical cyclones, and 35% of the people are from rural areas and the other 65% are from urban areas. Drought is one of the natural disasters that have also affected these communities, with 30% of total number of affected respondents in rural areas and 22% in urban areas. They are also affected by, coastal erosion and floods with 28% and 12% of target people affected by coastal erosion in n rural areas and urban areas respectively and 26% in rural areas and 6% in urban areas affected by floods.

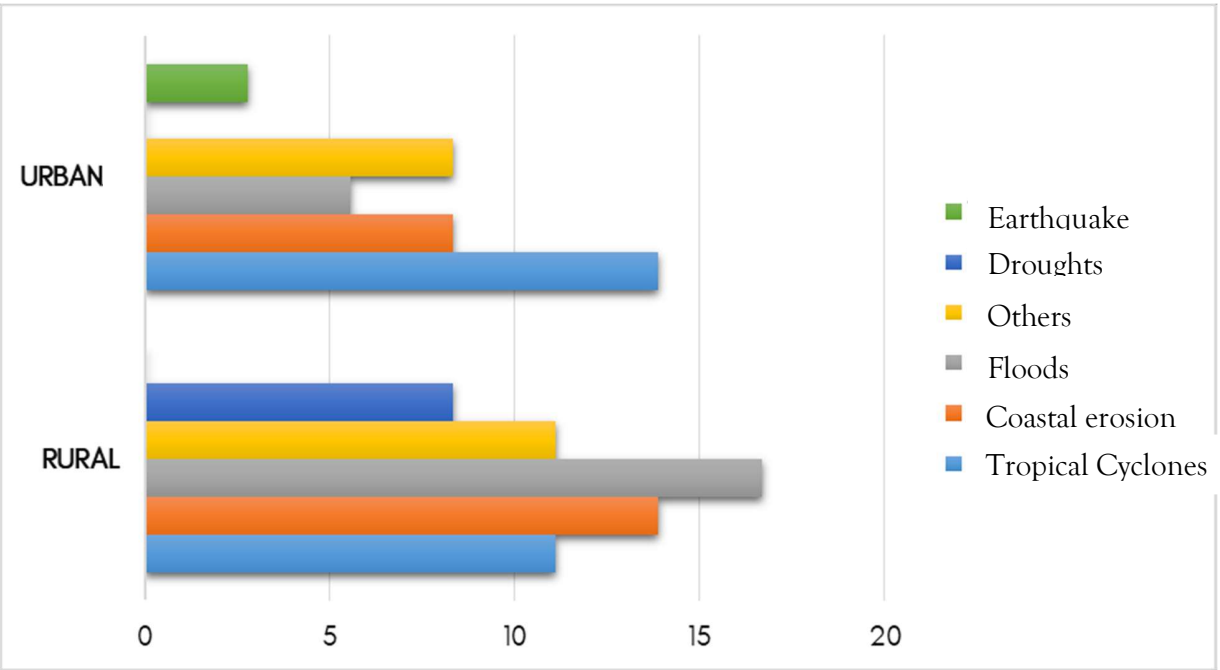

Figure 3: Most frequent climate change events in urban and rural areas

The results of the interview to key sectors and community members are similar, it means, they show smaller differences.

In rural areas, floods are considered to be one of the most frequent disasters, followed by coastal erosion, cyclones and drought. While in urban areas, tropical cyclones are the most frequent natural

disaster, followed by coastal erosion, which has also been a frequent occurrence in these areas. Others have pointed to floods and earthquakes as some of the most frequent disasters in urban areas.

During focus groups discussion, participants also listed other factors such as: plague (funnel caterpillar), diseases such as covid-19 and malaria, cyclonic winds, heavy rains, strong winds, atmospheric discharges and drought as being frequent in both communities.

4.2.2. Health Services

The municipality of Pemba and the National Institute for Disaster Risk Reduction and Management have lamented the health situation in the communities (for example: the Paquetequete neighborhood practices open defecation, which is harmful to personal and biodiversity health). The same was true in Mecúfi, where the justification for this situation was the lack of conditions for digging latrines due to the nature of the soil. (saturated and steep) that exist there. This has placed the communities in a state of permanent risk of cholera.

The municipality of Pemba also indicated that the lack of access roads and the degradation of those that exist compromise the collection of solid waste, which contributes to the increased risk of cholera and water contamination.

4.2.3. Political Instability

According to official data from Pemba and Mecúfi municipality, the political situation and military instability, have increased the flow of people to more than 30% in both places (the Pemba and Mecúfi), which implies greater pressure on fishing resources, on the beach and on local green, social and economic infrastructures.

4.3. NATURAL DISASTERS IMPACTS

According to respondents points of view, the main economic consequences of these natural disasters in communities and/or families range from loss of properties (houses or others) in rural and damage of local infrastructure (markets, hospitals, schools, roads and bridges, water wells, etc.) urban areas. Loss of crops much more in rural areas to interruption of basic services (education, health, commerce, transport, etc.) in urban areas.

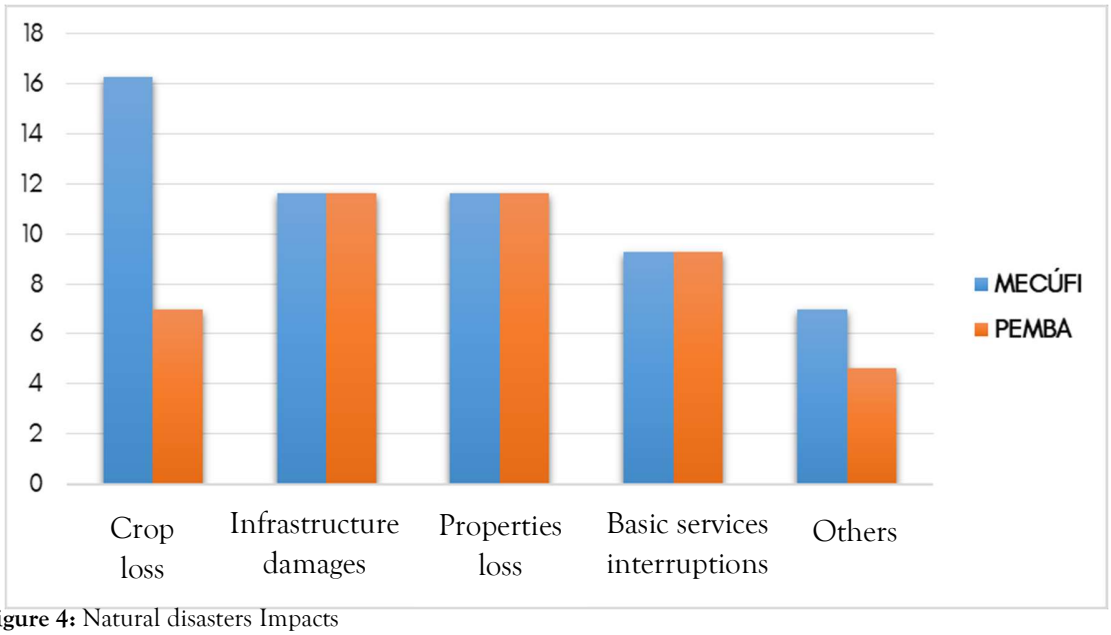

Figure 4: Natural disasters Impacts

Key stakeholders also point to crop loss, damage to infrastructure, loss of property, and interruption of basic services as the main economic impacts of these natural disasters on communities.

4.4. COMMUNITY COEXISTENCE WITH ITS NATURAL RESOURCES

Of the natural resources existing in these communities, according to community respondents and key sectors, both for rural and urban areas, the most important for family subsistence are fisheries resources, non-timber forest products (NTFPs), forests, agricultural soils and fresh water.

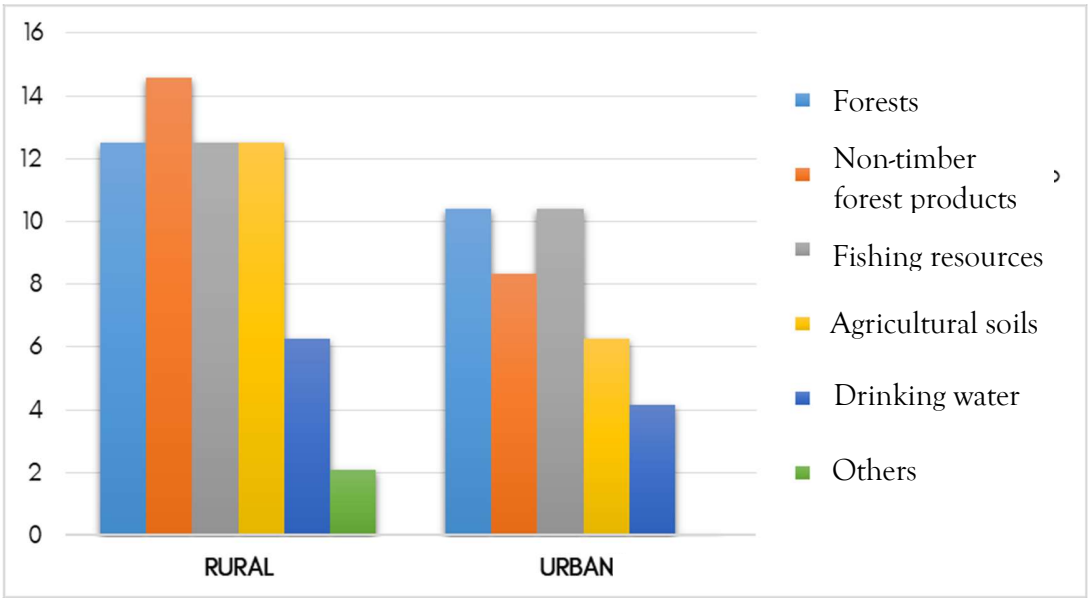

Figure 5: Level of importance of natural resources in rural and urban area

4.5. CHALLENGES IN NATURAL RESOURCES MANAGEMENT

In the urban and rural communities targeted by the study the challenges in natural resources management include overfishing, deforestation, soil depletion, water pollution, population growth and migration, whereas the same challenges were identified and affirmed by representatives of key sectors.

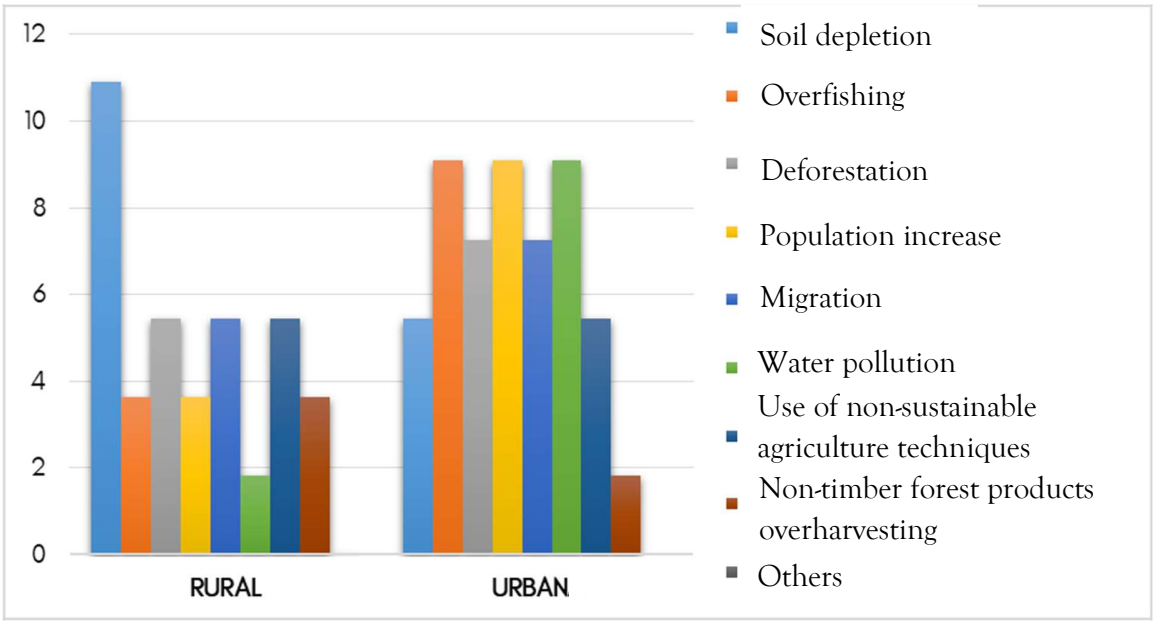

Figure 6: Challenges in natural resources management

There were identified other challenges in urban areas such as, inappropriate fishing practices such as use of mosquito nets and disrespect for the closed season, which continue to be among the main challenges for the fishing sector.

4.6. PREVENTION MEASURES

Through natural disaster management committees, communities participate in interventions on natural disasters and catastrophes

The following stand out among measures adopted by communities and/or families: infrastructure reinforcement, controlled burnings, adaptation of sustainable farming techniques, trees and grasses planting to prevent erosion and serve as windbreaks, carrying out community evacuation exercises, education on safe practices, water management mechanisms, creation and training of a local committee for disaster management. These measures are the result of the selfless work that institutions such as INGD, SDPI and SDAI have been developing together with the local committees and communities.

Despite the measures that communities and/or families have adopted to prevent natural disasters, only 18% (in rural areas) of the people surveyed are aware of a natural resource management plan in force in their community, and the others (88% in rural areas and 100% in urban areas) say they are not aware of any plan.

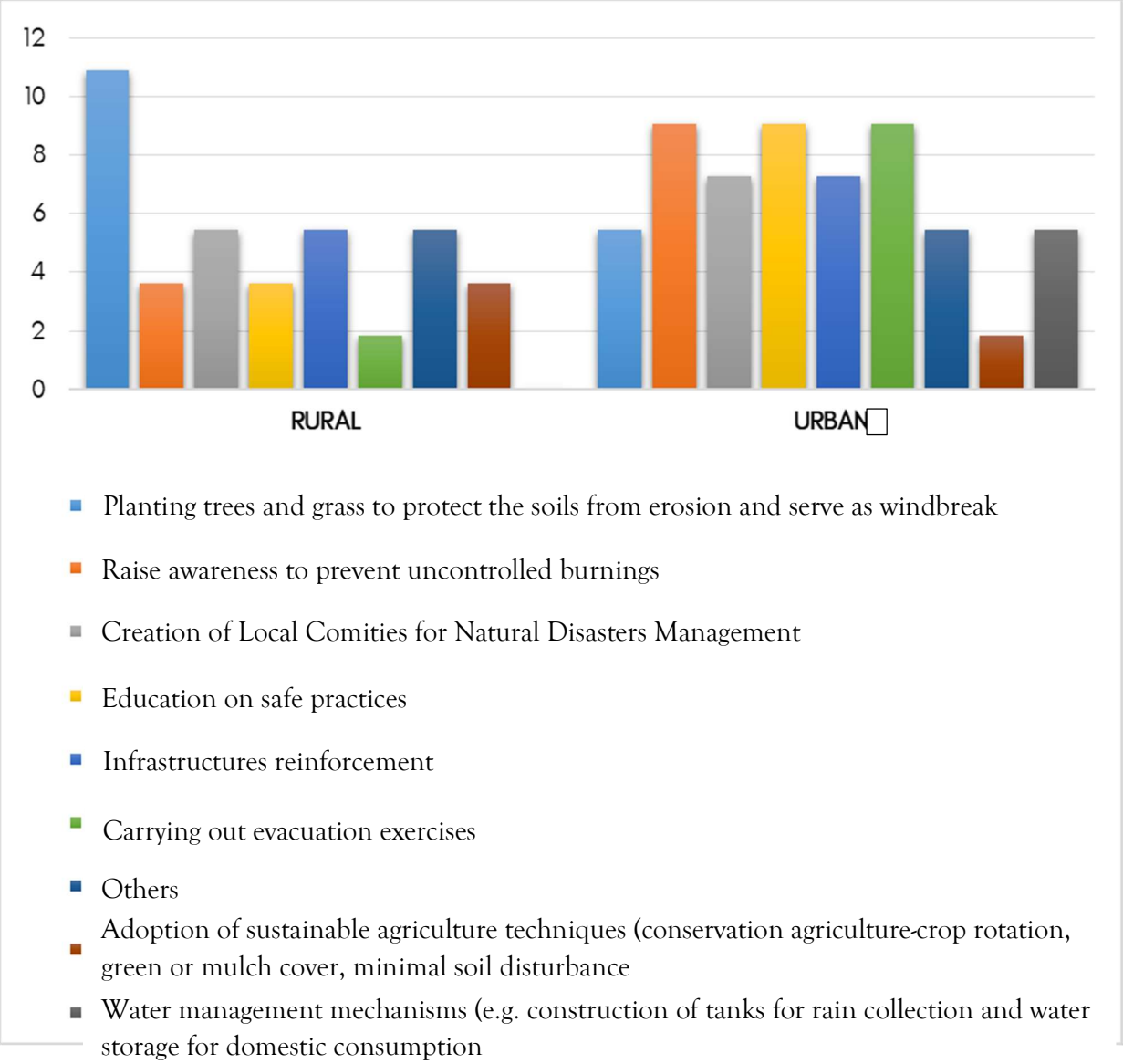

Figure 7: Measures adopted by communities and/or families to prevent climate disasters

4.7. COMMUNITY INVOLVEMENT IN NATURAL RESOURCE MANAGEMENT

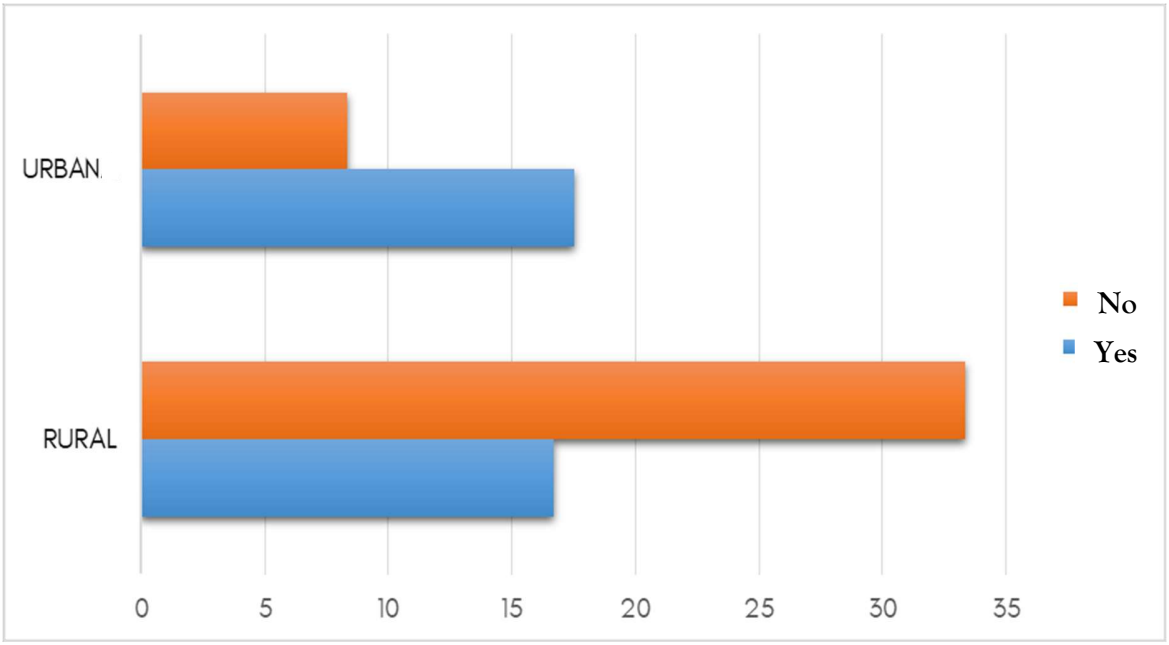

Figure 8: Communities involvement in natural resources management

From the perspective of community members, 66% of respondents in rural areas and 66% in urban areas say that public authorities do not guarantee the participation of community members in the monitoring and exploitation of community natural resources, and only 34% in rural areas and 34% in urban areas say that the authorities have guaranteed such participation.

Members of key sectors state that the community has always been involved in the following ways in rural areas:

- Awareness raising and work with partners such as the Environmental Association, Marine and Coastal Environment Research Center-CEPAM, OIKOS and Unilúrio in the preparation of awareness raising material;
- Trainings are held to train community leaders and production managers, and tasks are given to replicate the trainings for other community members. During the trainings, regulations are jointly formulated on how to reprimand those who do not comply with the established rules.
- Form natural resource management committees.

In the urban area the following has been done:

Community meetings organized by local community leaders where is raised communities awareness and given lectures on natural disasters and prevention measures.

4.8. POLICIES IN FORCE FOR NATURAL RESOURCES MANAGEMENT

Among the 120 interviewees, 98 (54 in rural areas and 44 in urban areas) state that are not aware of the policies in place to control the use of or access of natural resources such as, land, forests and water resources while 22 (16 in rural areas and 6 in urban areas) say they are aware of such policies.

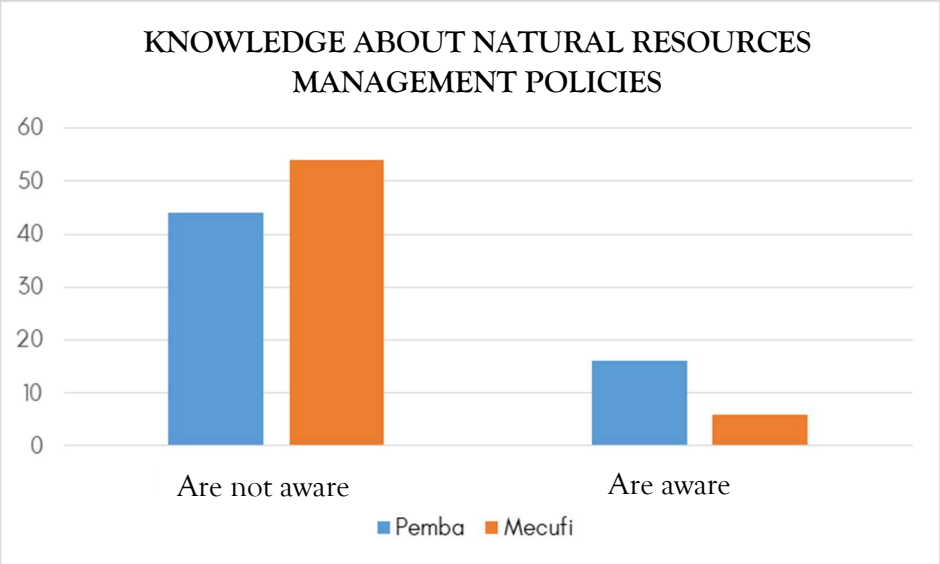

Figure 9: knowledge of natural resources management policies:

Respondents who said yes say the policies are:

- Planting mangroves and prohibiting their cutting;
- Do not defecate in the open air;
- Prohibition of fishing using mosquito nets;
- Respect for the closed season;
- Ban on felling trees;
- Prohibition of uncontrolled burning.

Faced with the same question, representatives of key sectors stated the following:

- Every person who wants to exploit natural resources must have an authorization document. Those who exploit land must have the title to the land;

- The government prohibits the cutting of mangroves to prevent coastal erosion and ensure the survival of shellfish;
- There are several generalized protection laws, they regret that it is not possible to have specific regulations on green infrastructure and specific to each region;
- There are rules that prohibit fishing some fish species. But is necessary to educate communities about the existence of these laws and regulations;
- There are laws that control mangrove felling, fish farming management and materials in use;
- The government encourages casuarina pine and vetiver planting, through natural resource management committees are established quota for inspections

4.9. GOVERNMENT MITIGATION ACTIONS

	Rural	Urban
Construction of emergency shelters	10.53	14.57
Identification and preparation of secure areas for the resettlement of affected people	6.88	10.93
Promotion of sustainable agriculture practices	12.15	0
Training and equip the national committees of natural disasters management	7.29	1.21
Reconstruction programs for destroyed work equipment such as beehives, fish tanks, etc.	6.88	1.21
Improvement of adaptation strategies	5.26	2.43
Others	0	6.07
Introduction of short-lived and climate-resilient seeds	5.26	0.4
Introduction of resilient seed banks	4.05	0.4
Implement early warning systems	1.21	3.24

Table 2: Government mitigation actions

With regard to the actions carried out by the government, it was possible to identify the following key actors:

- The local disaster risk management committees of Sambene, Natuco, Sassalane, Muaria, Napuilimuite and Murrebue have already been formed, revitalized and equipped, with a committee in Melipane still needing to be equipped;
- The health sector has created health committees and co-management committees focused on educating and raising awareness among communities about diseases associated with climate change, such as diarrhea, malaria and cholera caused by floods or water shortages;

- Looking at the displacement of families from areas at risk of military conflict to Pemba, the municipality has plans to build an accommodation center for these families;
- The Provincial Economic Activities Services have created marine resources co management committees in all districts whose responsibility is to carry out awareness-raising campaigns in the fishing sector and promote the rational use of marine resources;
- For the sustainability of these committees, when licensing and registering new actors, they keep a certain percentage of the amount paid once each actor has their license;
- The National Institute of Meteorology of Mozambique-INAM, through the Disaster Management Committees, is involved in disseminating information on climate forecasts to all districts through lectures and the setting up of meteorological stations against the backdrop of the government program: "One District, One Meteorological Station"

Looking at rural areas, over the last five years the key actors interviewed consider that there has been an improvement in the dissemination of information on climate change since:

- The population is already informed about natural phenomena and understands climate change;
- Resilient construction and production techniques have improved over recent years;
- Due to ongoing training and advocacy on the subject, knowledge about climate change has increased within the community;
- The creation of these health, natural resource management and disaster management committees helps in education and dissemination of protective practices.

In the urban area, were also highlighted the same aspects as in the rural area, with the addition of the following aspects:

- The National Institute for Disaster Risk Management and Reduction has been carrying out digital mapping of risk areas using drones (in partnership with WeWorld GVC).

According to communities points of view namely, 61% of the interviewees (51 and 22 from rural and urban areas respectively) the measures are efficient, for 30% (30 and 6 from urban and rural areas respectively) the measures are somewhat efficient, for 8 interviewees the measures are inefficient and for 2.5% (3 people from rural areas) the measures are very efficient.

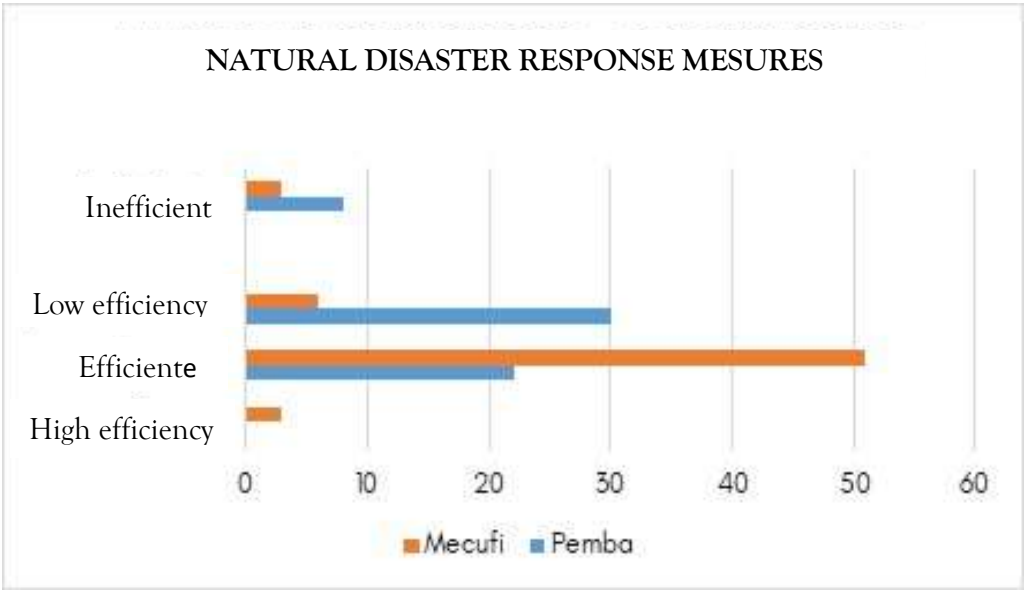

Figure 10: Natural disasters response measurements

4.10. ADVOCACY

Based on the responses obtained, the following (see table 3) specific awareness raising activities carried out by community and local organizations to promote awareness on sustainable management of natural resources and prevention of natural disasters

The next table shows that there are more awareness-raising activities in rural areas than in urban areas. Community radio has proven to be a very useful and valued tool in rural areas. Educational talks often held in both rural and urban areas, but more frequently in rural areas.

Public authorities have taken some actions to educate and raise awareness among communities about environmental risks and the need for adaptation.

	Rural	Urban
Education lectures	25.1	13.81
Local radio Informs	18.41	9.62
Awareness campaigns	8.79	7.53
Informative material distribution	8.79	2.93
Others.	0	3.77
Training workshops	0	1.26

Table 3: Awareness raising activities carried out by community and local organizations in rural and urban areas

In rural areas, the following actions were carried out:

- Creation of environmental clubs in schools. Has not yet been released a dedicated manual, but there are activities such as environmental education that are taking place in schools as extracurricular activities ;
- District Services for Economic Activities have been disseminating information in schools about uncontrolled fires prevention and their harmful effects on the environment and the community in general;
- The Government, through the District Planning and Infrastructure Services and the National Institute for Disaster Risk Management and Reduction, has held community meetings to inform the population about disaster risks and their impacts, especially on local infrastructure, and they are trained in prevention;
- The health sector currently works with 14 health committees and 3 co-management committees that are responsible for educating and disseminating information in communities about water-borne diseases and their prevention.

In the urban area:

- Several awareness-raising activities and lectures are, carried out by eight (8) committees at municipal level with the support of the National Institute for Disaster Risk Management and Reduction and, the National Fund for Sustainable Development. Awareness-raising activities related to risk signs and codes are also carried out so that the population can understand what a green, yellow or red flag means;
- Environmental education is being incorporated in an extracurricular way by school clubs, with the National Institute for Disaster Risk Reduction and Management supporting with training and equipment.

To ensure young people and women participation in advocacy activities, the authorities have implemented the following measures in rural areas:

- Through a partnership with the non-governmental organization OIKOS, which implement theater activities with plays related to environmental education, which attract young people of both sexes;

- The District Economic Activities Services make frequent home visits and thus ensure the involvement of everyone in the family in talks about climate change;
- A rule of 50% participation of women and young people has been established to ensure the participation of young people and women in awareness-raising actions;
- In urban areas, the municipality has carried out actions to involve women in programs and has implemented a mandatory 50% gender representation policy

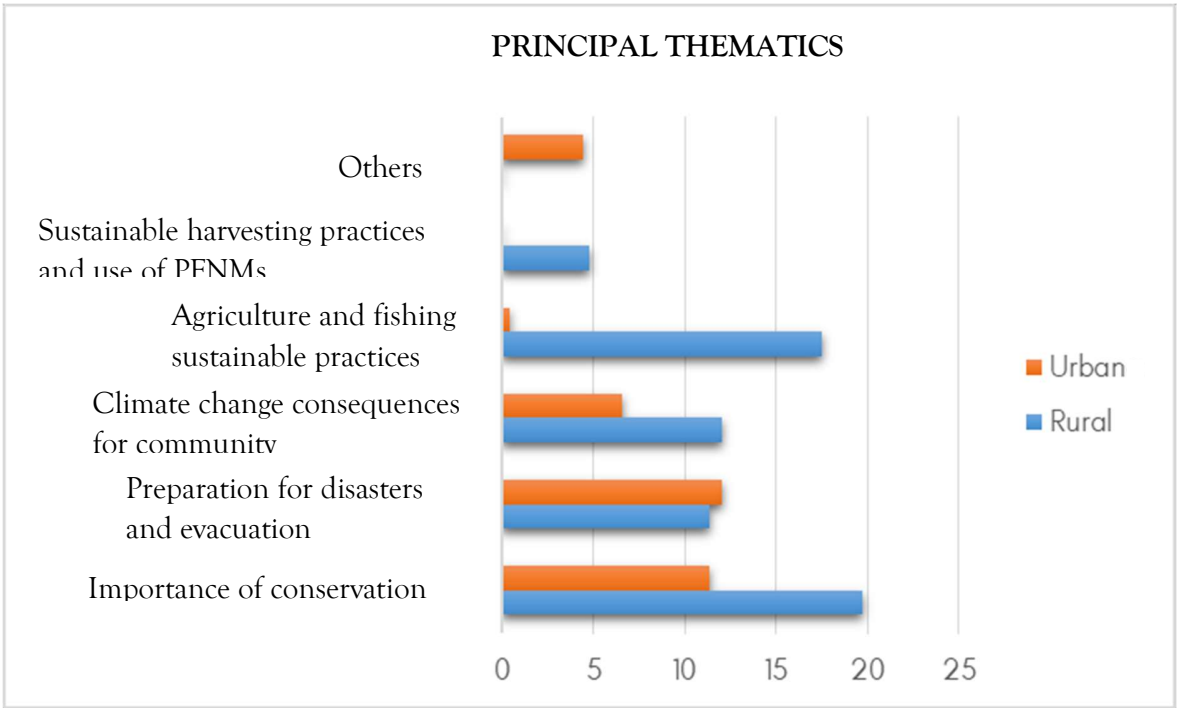

Figure 11: Principal awareness thematic in rural and urban area

According to the results obtained, the main message conveyed through awareness raising activities in rural areas was the importance of conservation, followed by sustainable agriculture and fisheries practices. In urban areas, the main message was disaster preparedness and evacuation, followed by the importance of conservation.

In terms of observed results after awareness-raising activities, both urban and rural areas report a high frequency in the growth of community understanding on the topics addressed and an improvement in the community's response to natural disasters. In rural areas, they also mention the adoption of more sustainable agricultural and fishing practices.

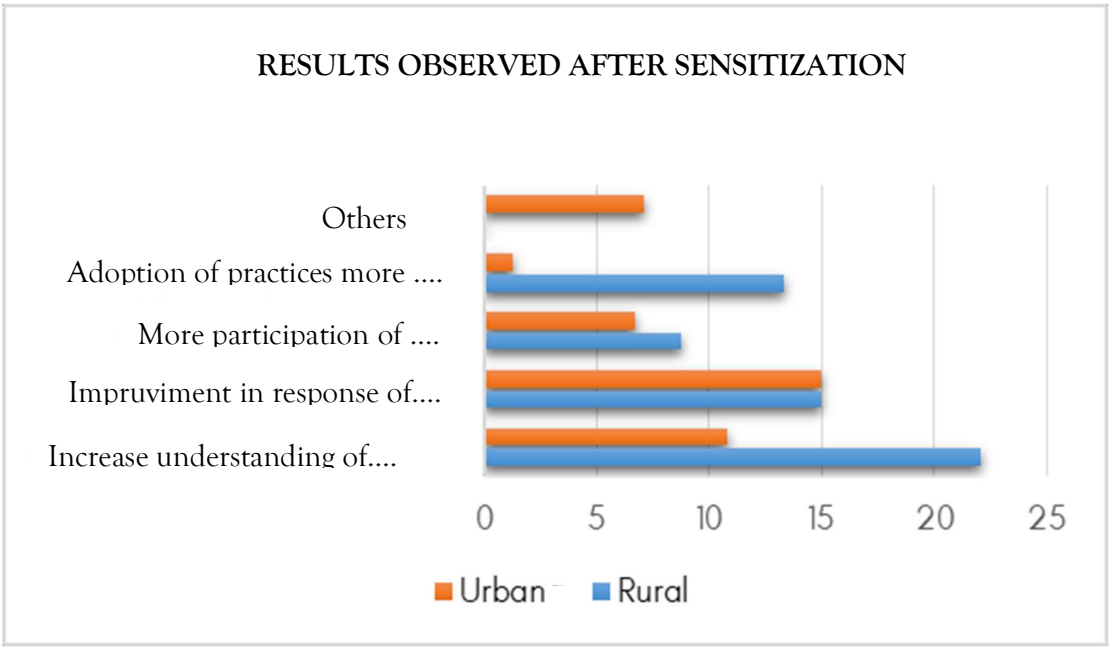

Figure 12: Results collected after raising awareness in rural and urban areas

Looking at the main challenges faced when trying to raise awareness of the community about natural resource management and climate risks. According to the results of surveys carried out, in rural areas were identified the following challenges:

- Lack of advertising material and means;
- Lack of instruments for disseminating information (e.g. microphones);
- Lack of ability to convince communities;
- Little participation of communities in local meetings;
- Rejection of information due to lack of interest;
- Little participation of young people;

In urban area, the following were identified:

- Resistance to moving to safe places;
- Little outside help;
- Poor access to information;
- Lack of appropriate forums to address the issue.

4.11. DIFFERENCES IN PERCEPTION AND NATURAL RESOURCES MANAGEMENT

Based on data collected in the field, differences between urban and rural communities in natural resources management range from differentiated access to resources, different conservation practices, different access to information, level of awareness about climate risks, different beliefs about natural resource values, type of local governance and cultural and social power, use of modern technologies, among others.

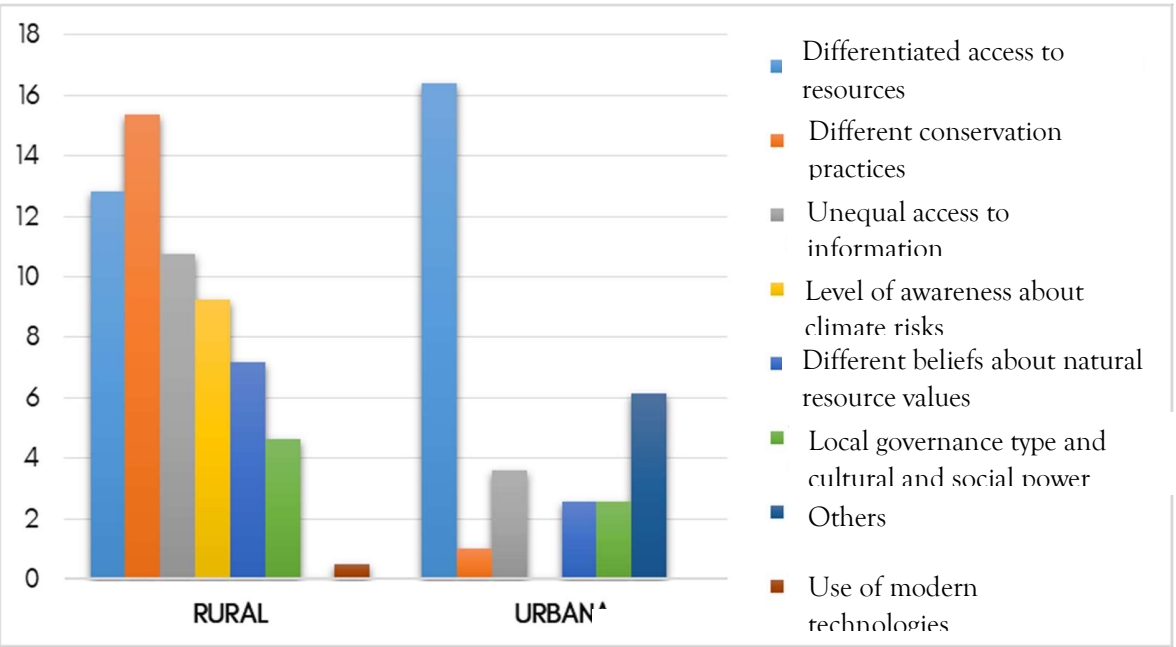

Figure 13: Differences between urban and rural communities in natural resources management

The main reasons behind these differences in natural resources management between urban and rural communities from the point of view of key stakeholders are as follows:

According to rural area:

- Rural areas are where are found raw materials and therefore there must be control over the management and regulation of natural products. Many people who live in rural areas live in permanent locations, while in the city many people are always on the move and may not see the need to take care of the areas where they live.

- Forests and natural resources represent the source of life, while in the city everything is about whoever has money to buy and collect.

While in the urban area:

- They expect the government to do everything for them in rural areas they already take some initiatives.

4.12. WOMEN AND YOUTH INVOLVEMENT

Women and men are differently affected by climate change. Climate change tends to exacerbate existing gender inequalities and gender inequalities lead to women facing greater negative impacts.

According to the responses obtained, many respondents think that women are more affected by the effects of climate change than men in urban areas, while in rural areas they think that men are more affected. Even in the focus groups this different feeling was demonstrated in both groups.

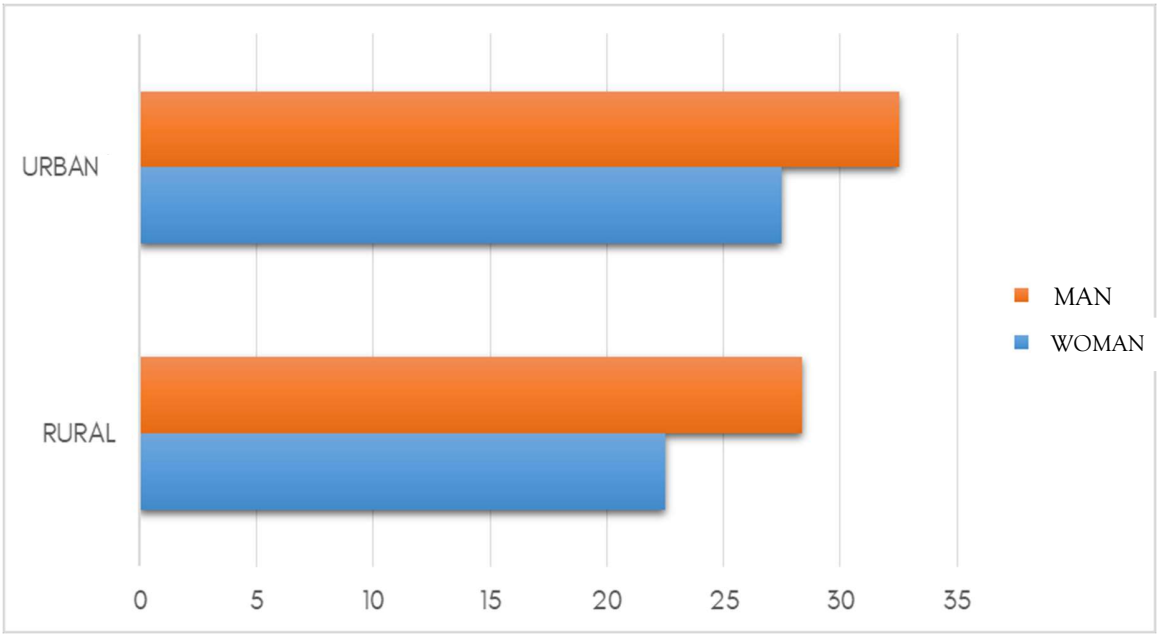

Figure 14: Urban and rural communities understanding of the level of sensitivity to climate change by gender

In the urban area focus group, was raised the question about the role of cultural and religious values in propagating teachings that result in a lack of opportunities for women compared to men.

In rural areas, those who identified women as the most affected highlight that, as they are the ones who take care of the house and children, they could feel the most intense impacts.

- They are the ones who take care of the house and children.

Those who said men are more affected indicated the following reasons:

- Men are the ones who lead the family and the ones who have to provide for the family in times of scarcity;
- Because it is men who go fishing and do other natural resource activities;
- They are the ones who suffer the most in the search for a new field.

It is important to recognize that women are important agents of change. Women bring unique capabilities to adaptation responses. Their knowledge as key producers and managers of resources provides them with unique skills and experience that are valuable for designing adaptive solutions. Adaptation responses that harness these capabilities and strengths can lead to greater returns across broader development goals. Gender mainstreaming is a key factor in ensuring the success and sustainability of adaptation responses.

4.12.1. Women's Participation in Initiatives

Of the community members surveyed, 62% (15% in rural areas and 47% in urban areas) reported that women do not participate in the initiatives, and 38% (35% in rural areas and 3% in urban areas) of the people surveyed believe that women participate in initiatives. This data leads us to an analysis that although there are women involved in the meetings where such initiatives arise, they have not had the space to present their ideas.

For (UNDESA, 2014) women's leadership in climate action is a critical role, and is often unrecognized in climate responses. Women's action is reflected in their knowledge and leadership in the sustainable management of natural resources, in leading sustainable practices at household, community, national and global levels, in responding to disasters and other climate-related crises, such as drought.

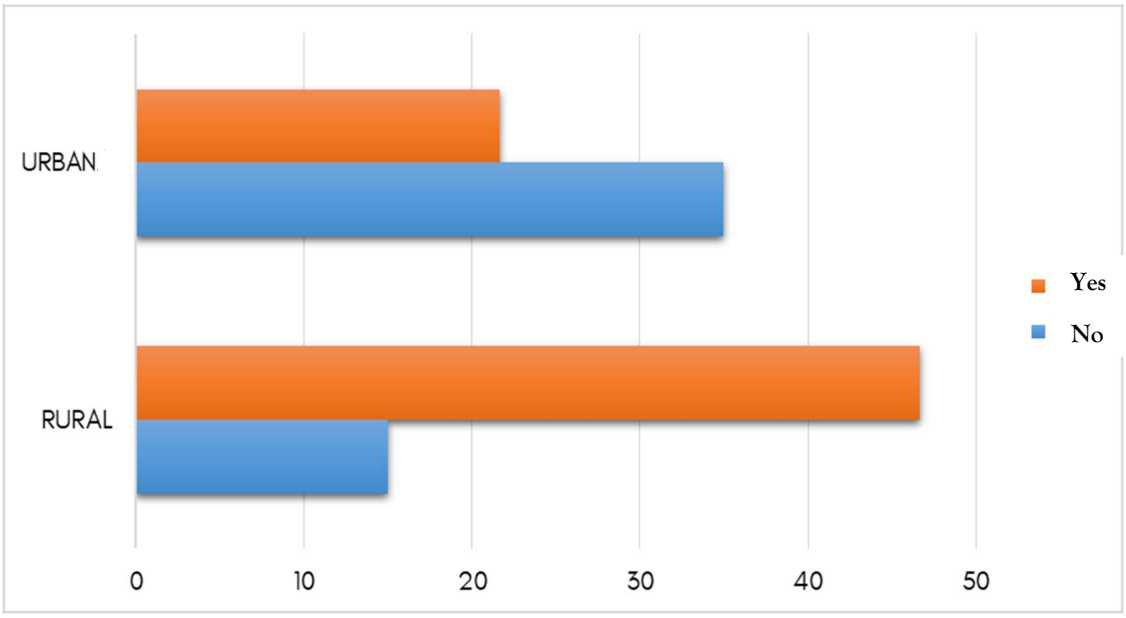

Figure 15: Woman participation in community initiatives against climate change

Gender inequalities that limit women's access to financial resources, land, education, health and other rights and opportunities also limit their ability to cope with and adapt to the impacts of climate change. Women's unequal participation in decision-making processes and labor markets further exacerbates these inequalities and prevents them from contributing fully to climate-related planning, policy-making and implementation (UNDESA, 2014).

According to data obtained from key stakeholders, in rural areas, advocacy and education motivated an increase in women's participation, in rural areas, they believe that it was awareness-raising because in that way women volunteered to be part of the committees. For the municipality of Pemba, women's involvement is mandatory in urban areas. The Provincial Services of Economic Activities also explained that, due to a lack of employment, women are already involved, for example, to complete the fishing value chain, since they are the ones who sell the fish and the Government and partners have supported them with cool boxes. At the National Administration of Conservation Areas, the policies adopted by the park open spaces for women to participate, for example it is mandatory for school committees to have 32 members, two (2) of which are teachers of both sexes and 30 students divided equally along the gender line.

4.12.2. Role of young people in adapting to climate change

According to GCON (2019), young people should not be mistaken as passive victims of climate impacts. On the contrary, they have a key role to play in transforming our societies towards a climate-resilient, low-emissions future. A better understanding of overconsumption, exploitation of resources, increasing inequalities and worsening impacts of climate change will further encourage them to play active roles and advocate for effective solutions.

While young people have long been involved in schools and at community level, increased education and active engagement are factors that have led these advocates to shape opinions and demand stronger and more effective climate action, in addition to young people's lived experience of the impacts of climate change. In recent years, young people around the world have taken to the streets and called on their governments to act decisively. However, in decision-making processes, young people are often marginalized and need better access to meaningful and active political engagement.

In both urban and rural areas, young people do not feel involved and do not take ownership of climate change management activities. In urban areas, young people gave responses ranging from "complicated" to "somewhat complicated", citing a lack of resources and incentives to participate. In rural areas, they also claim that the process is not very participatory and complicated.

In this survey conducted in rural and urban areas of Cabo Delgado, young people indicated that they would like to perform the following actions to help improve natural resource management:

- Oversight;
- Focal point in the disaster area;
- Being activists (speakers) on climate change issues;
- Training farmers on sustainable farming practices and;
- Disseminate various information in the community about climate change and its mitigation.

Having summarized the data, we present below a comparison of the main results obtained from data collection at urban level (Pemba City) and rural level (Mecúfi District).

Aspect	Urban environment	Rural environment (Mecúfi district)
Main economic activities	• Tourism • Formal employment • Informal trade	• Agriculture • Fishing • Art and Craft • Coal sales • Informal trade
Natural Disasters and Communities Vulnerability	• Coastal erosion • Sea level rise • Tropical cyclones • Earthquakes	• Coastal erosion • Tropical cyclones • Floods • Droughts
Communities and Public Authorities Adaptation to Environmental Risks	• Construction of emergency shelters • Identification and preparation of safe resettlement areas; • Improving roads for evacuation • Early warning	• Introduction of short-term seed • Introduction of resilient granaries • Early warning systems • Sustainable farming practices • Construction of shelters emergency • Creation and training of natural disaster management committees • Improve roads for evacuation.
Advocacy and Awareness Raising Actions	• Educational lectures • Report via community radio • Climate change awareness campaign	• Educational lectures • Reporting via local radio • Awareness campaigns • Creation of environmental clubs
Participation and Involvement of Women and Young people	• Weak participation of young people and women	• Weak participation of young people and women

Table 4: Main results obtained from data collection at urban level (Pemba City) and rural level (Mecúfi District).

5. CONCLUSION

In conclusion, it can be deduced that both the urban area of Pemba and the rural area of Mecúfi are affected by the same disasters, mainly cyclones, strong winds, coastal erosion and drought. However, the responses by the government and authorities have not been the same. There is more evidence of government involvement in communities in rural areas than in urban areas.

In terms of gender, 62% of respondents from both areas reported that women do not participate in discussions about climate change and natural disasters. However, rural communities report more inclusion than urban, 35% versus 3%, demonstrating that there is more support and awareness from the government and partners in rural areas than in the city. When it comes to youth engagement, both rural and urban communities report poor youth engagement during the planning and implementation of climate change and disaster management initiatives.

In terms of advocacy, although there has been some work in both rural and urban communities, there has been more government intervention in rural areas than in cities. In rural areas, 60.58% of participants were aware of at least one of the ongoing climate change and disaster management awareness campaigns compared to 33.08% in urban areas.

In terms of community involvement in decision-making and strategy design, 66% of rural and 66% urban respondents report that the Government does not ensure inclusion. Young people in both settings have shown willingness to promote education and prevention measures and call on the Government and its partners to include them.

6. RECOMMENDATIONS

The recommendations presented below emerged from interviews with community members, key stakeholders and focus group meetings. The following recommendations emerged for both rural and urban areas to improve advocacy and to involve more youth and women.

ACTIONS	TARGET GROUP	AREA	RESPONSABLE
TRAINING AND EQUIPMENT			
Support with trainings and qualifications in order to create good practices or information about climate disasters.	• Natural Resource Management Committees (NRMCs) • Local Disaster Management Committees (CLGDN) • Fisheries Committees	• Rural • Urban	INGD, SPAE, NGOs
Support with work equipment such as phones, tablets, t-shirts that can encourage youth involvement.	• Young people	• Rural • Urban	NGOs, Government
Experience-sharing activities with other provinces and neighboring countries can help young people and women to become more involved in climate change activities.	• Women and youth • Members of local committees • Government and Municipality	• Rural • Urban	Government, NGOs
Sustainable farming techniques			
Train on conservation agriculture techniques that constitute a form of mitigation, applying crop rotation,	• Producers	• Rural	SDAE, SPAE

intercropping, mulching practices and minimal soil disturbance			
Advance planting to minimize attacks by diseases and pests	• Producers	• Rural	SDAE, NGOs
Invest on crops resistant to drought or pests and diseases.	• Producers	• Rural	SDAE, NGOs
Intercropping and agroforestry / Crop diversification	• Producers	• Rural	SDAE, NGOs
Reforestation. Planting trees is one of the simplest and most tolerant alternatives to reverse the impacts of climate change on the environment. It is recommended that this measure be adopted above all to minimize the effects of cyclones and strong winds generated and soil silting.	• Producers	• Rural	SDAE, NGOs
Infrastructures and access routes			
Improvement of access roads facilitates evacuation and local business in order to reduce communities vulnerability. It will also facilitate waste management in urban area.	Community at large	• Rural • Urban	Government, Municipality
Design and build adequate latrines in resettlement areas	Community at large	• Rural • Urban	SDPI, INGD,NGOs

Improvement of drainage system for water drainage	Community at large	• Urban	Municipality, INGD

DIVERSIFICATION OF THE ECONOMY			
Implementing alternative projects could divert the community from putting pressure on resources (e.g., fishponds could reduce pressure on fishing).	Young people, women, men	• Rural • Urban	Municipality, Government, NGOs
Advocacy actions			
Design of a policy to include youth and women in related programs.	Government, Municipality	• Rural • Urban	NGOs
Improve the natural disaster care alert system	Government, Municipality	• Rural • Urban	INGD, Municipality
Raise awareness among communities to take ownership and continue to dedicate themselves to conservation initiatives.	CGRNs, CLGDN, Health and co management committees, fisheries resources management committees.	• Rural • Urban	SDAE, SPAE, INGD, ANAC, Radios communit NGOs
Strengthen efforts to conserve natural resources and train community leaders on conservation rules (e.g., plant more trees in schoolyards, homes, farms, and roadsides)	• School Committees and Clubs • CGRN • CLGDN • Fisheries Resources Management Committees	• Rural • Urban	SDAE, SPAE, SDPI, ING ANAC, NGOs

Table 5: Recommendations

7. BIBLIOGRAFIA

Baettig.et.al. (2007). Climate Change Adaptation: The African view.

Bassini, & Giordano. (2019). Contextualizing Climate Change for Africa.

Da Silva, J. (1982). Deep Sea Research Part A. Oceanographic Research Papers.

Huyer, S. (2016). Gender equality in national climate action: planning for gender-responsive nationally determined contributions.

Kasdja.et.al. (2019). Plano de Adaptação do Quênia.

Marzoli. (2007). Mechanisms for rural adaptation of Climate change: Road to transformative agenda.

Mucavele, S. (2018). Gender and climate change in Mozambique: Vulnerability Analysis.

Ribeiro, N., & Matedeane, J. (2019). Mudanças climáticas, conservação florestal e serviços ambientais.

Ribeiro.Natasha.et.al. (2020). Gender and Climate change: Mozambique case.

UNDESA. (2014). Implementation of gender-responsive climate action in the context of sustainable development.

8. ANNEXES

Annex 1: Interviewing Mecúfi District community leader

Annex 2: Interview with Pemba City young people

Annex 3: Focus group discussion in Mecúfi district

Annex 4: Family photo with focus group discussion participants in Mecúfi district

Annex 5: Focus group discussion in Pemba City