

THE EXPERIENCE OF MOZAMBIQUE IN CALAMITY MANAGEMENT AND SOCIO-ENVIRONMENTAL DISASTER RECOVERY (2019-2023)

*A EXPERIÊNCIA DE MOÇAMBIQUE NA GESTÃO DE
CALAMIDADES E RECUPERAÇÃO PÓS-DESASTRES
SOCIOAMBIENTAIS (2019-2023)*

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Abstract

After the occurrence of cyclones Idai and Kenneth, and despite the level of poverty in which Mozambique finds itself, it has been recovering at an acceptable pace with the help of donors and international partners. Therefore, is Mozambique an example in terms of post-socio-environmental disasters or is it far from it? In the first case, what is this contrast due to? In the context of the occurrence of extreme weather events, solid financial management is crucial for good prevention, good mitigation and a fast recovery. Aware of this, the country has been organizing itself in terms of creating institutions dedicated to emergency management and adopting the corresponding legislation. However, the country has been failing in the financial management component. The objective of this article is to

Resumo

Depois da ocorrência dos ciclones Idai e Kenneth, e apesar do nível de pobreza em que Moçambique se encontra, tem estado a recuperar-se a um ritmo aceitável, com ajuda de doadores e parceiros internacionais. Assim, Moçambique constitui um exemplo em matéria de recuperação pós-desastres socioambientais ou está longe disso? No primeiro caso, a que se deveria esse contraste? Em contexto de ocorrência de eventos climáticos extremos, uma sólida gestão financeira é determinante para uma boa prevenção, uma boa mitigação e uma rápida recuperação. Ciente disso, o país tem vindo a organizar-se em termos de criação de instituições vocacionadas, gestão de emergências e adoção de legislação correspondente. Contudo, o país vem falhando na componente de gestão financeira. O objetivo deste artigo é aferir até que ponto a experiên-



assess to what extent the experience of Mozambique can serve as an example in the region and in the world, taking into account that there are other countries that are also victims of extreme climate events. As for the specific objectives, it is intended to analyze and discuss how the management and recovery after socioenvironmental disasters are conducted by the Mozambican authorities, and whether they are aligned with international practices and standards, so that it can be compared with other countries in the same circumstances. The research methodology was qualitative, being exploratory as to the objectives. As for the technical procedures, bibliographic and documentary research was used, developed based on books, papers, reports, studies, and legislation. The research procedure method was comparative. We conclude that Mozambique may even have experiences to share, but it still has a long way to go to become a reference.

Keywords: disaster management; post-disaster recovery; prevention.

cia de Moçambique pode servir de exemplo na região e no mundo, tendo em conta que existem outros países que também são vítimas de eventos climáticos extremos. Quanto aos objetivos específicos, pretende-se analisar e discutir de que modo a gestão e a recuperação pós-desastres socioambientais são realizadas pelas autoridades moçambicanas e se estão alinhadas às práticas e aos padrões internacionais, de modo que se possa comparar com outros países, nas mesmas circunstâncias. A metodologia de pesquisa utilizada foi qualitativa, sendo exploratória quanto aos objetivos. Quanto aos procedimentos técnicos, lançou-se mão de pesquisa bibliográfica e documental, desenvolvida com base em livros, artigos científicos, relatórios, estudos, textos e legislação. O método de procedimento da pesquisa foi o comparativo. Concluiu-se que Moçambique pode até ter experiências para partilhar, mas ainda deve trilhar um longo caminho para se tornar referência.

Palavras-chave: gestão de calamidades; prevenção; recuperação pós-desastres.

Introduction

Located on the east coast of Africa, Mozambique is, as one may say, a gateway for extreme atmospheric events formed off the Indian Ocean, which then cross the Mozambique Channel. For this reason, the country was not only forced to adopt policies and strategies to prevent and mitigate the risks of socio-environmental disasters, but also began to focus its attention on the reconstruction and recovery from the consequential material damage.

The aim of this research is to assess whether Mozambique's experience in post- socio-environmental disaster management and recovery serves as an example in the region and in the world, given that there are other countries that experience the same situations.

As for the specific objectives, we intended to analyze and discuss how the management and recovery, following a socio-environmental disaster, are

conducted by the Mozambican authorities, verifying whether they are aligned with international practices and standards, so that it is possible to compare it with other countries under the same circumstances.

To achieve this purpose, a brief retrospective is made of the main socio-environmental disasters that have occurred in the country since the post-independence period and how they were managed, as well as the experiences gained from this process.

Climate change is identified as the main factor responsible for the worsening occurrence of socio-environmental disasters across the planet. Very recently, Mozambique was hit by two major cyclones, Idai and Kenneth, whose effects are still being felt, adding to poverty and terrorism in the north of the country. In January and February 2023, the country was again the target of another cyclone, this time Freddy. With this cyclone, Mozambique showed the first signs of weakness in its prevention and mitigation capacity. The causes will be studied throughout this article.

The research considers that the management and recovery of socio-environmental disasters in Mozambique are carried out in a context of poverty and that the occurrence of extreme natural events only aggravates the country's precarious economic scenario. In addition, this article will bring a small approach on how the recovery from socio-environmental disasters is done in Mozambique, discussing what is recoverable and what is not.

1 Socio-environmental disaster

According to data from the National Institute for Space Research (INPE), a socio-environmental disaster occurs when a very dangerous physical event causes, directly or indirectly, damage to property or causes a large number of victims, or both. Socio-environmental disaster is a serious disruption of the normal functioning of a community or society caused by a phenomenon of natural origin (MOÇAMBIQUE, 2020). However, these phenomena are currently understood to have been preceded by harmful human intervention in nature.

These events often occur without warning and can have a significant impact on the lives of those affected. Some common examples of socio-environmental disasters include earthquakes, hurricanes, floods, wildfires, storms, and prolonged droughts. These events can be caused by a variety of natural factors, including seismic activity, storms, climate change, volcanic eruptions, among other natural processes.

Proper management of socio-environmental disasters involves preparing for these events, mitigating their effects and providing a swift and effective response when they occur.

Proper management of these events can help reduce loss of life, minimize damage to property and infrastructure, and limit environmental impact, as well as prepare communities to face this type of problem by providing information and guidance on how to organize and respond to emergencies. This includes implementing emergency plans, training emergency response teams, and building disaster-resistant infrastructure.

2 Post-disaster recovery

Law no. 10/2020 defines post-disaster recovery as a set of medium and long-term actions for the sustainable restoration of destroyed or damaged infrastructure, due to the occurrence of a phenomenon of natural origin (MOÇAMBIQUE, 2020).

This process involves rebuilding affected areas and infrastructure, as well as restoring livelihoods, rehabilitating basic services, and restoring the safety and well-being of affected people.

Post-disaster recovery is a complex and sometimes time-consuming process that can take years or even decades to complete, depending on the magnitude of the disaster. However, it is an opportunity to improve the resilience of affected communities by implementing preventive measures and building more disaster-resistant infrastructure.

3 Management of socio-environmental calamities or disasters

Law no. 10/2020 considers that the management of socio-environmental calamities or disasters involves the organization, planning, and management of resources and responsibilities to deal with an emergency (MOÇAMBIQUE, 2020).

The management of socio-environmental calamities or disasters involves several important steps to minimize negative impacts on the population and material goods, with emphasis on prevention, preparation, response, and recovery.

3.1 Prevention

Set of standardized measures aimed at protecting people and property in the event of an extreme event. Prevention is the best way to manage calamities or

socio-environmental disasters through security and prevention measures before the disaster occurs, including identifying risk areas and implementing measures to reduce vulnerability, such as building containment barriers and creating evacuation routes, as well as early warning systems and training and education for the population.

3.2 Preparation

Preparation is another important step in the management of socio-environmental calamities or disasters. It involves creating contingency plans and conducting simulation exercises to test the effectiveness of these plans. Authorities must be prepared to coordinate relief operations and mobilize the necessary resources for the response.

3.3 Response

It is important for the authorities to act quickly in order to protect the population and minimize the damage, ensuring the evacuation of risk areas, the provision of shelter and medical assistance, as well as the distribution of food and clean water and the coordination of search and rescue operations.

3.4 Recovery

The recovery phase is the final step in the management of socio-environmental calamities or disasters and involves restoring damaged infrastructure, assisting affected people, and implementing measures to prevent future disasters.

The management of socio-environmental calamities or disasters therefore requires a multidisciplinary and coordinated approach, which involves the participation of all interested parties, enabling the construction of experiences, being understood as knowledge or learning obtained through practice or experience (VIVÊNCIA, 2023).

4 Main post-independence socio-environmental disasters in Mozambique

In Mozambique, the rainy season occurs between November and March, and it has been in this meteorological period that the intense rains are interspersed with the occurrence of cyclones that form in the Indian Ocean and reach different points of the Mozambican coast.

The combined effect of rains, strong winds, and floods has created situations of real socio-environmental disasters of different dimensions and intensities.

For the past 50 years, the Limpopo River basin in Mozambique has been plagued by major floods. In 1977, in the lower Limpopo region, precisely in the regions of Chókwe and Xai-Xai, there was a devastating flood that caused countless deaths and enormous material damage. Other floods occurred in 1981, 1988, and 1996, albeit in smaller dimensions (MANANE; VAZ; VIVEROS, 2019).

However, the main socio-environmental disaster that Mozambique remembers dates back to the floods of 2000. Indeed, from November 1999 until the end of January of the following year, heavy rains, which had been falling in neighboring South Africa, filled the beds of the rivers Incomáti, Umbelúzi, and Limpopo, which quickly flooded vast areas of the southern provinces of Mozambique. In the middle of the rainy season, towards the end of February 2000, Cyclone Elline, formed in the Indian Ocean, hit the Mozambican coast, precisely in the same area where floods were already registered, flooding vast rural areas, towns, and some urban areas, in what constituted, until then, the worst socio-environmental disaster in a century in the country.

As a result of the 2000 floods, 500,000 people were displaced and there were serious material damage to homes, agricultural infrastructure, public buildings, schools, hospitals, water and electricity supply systems, road networks, railways, and telecommunications (MILLER, 2002).

As of the 2000 floods, the then National Institute for Natural Calamity Management (INGC) adopted the terminology “recurrent floods” to designate the cyclical occurrence of these phenomena combined with tropical depressions. Thus, the INGC points out that the three biggest floods recorded in Mozambique occurred in the 21st century: the first, in the south of the country, in 2000/2001 period; then, in the center of the country, in 2007/2008, and finally, again in the south of the country, in 2013 (GFDRR, 2014). The 2013 floods were very similar to those of 2000, although with a relatively smaller destructive impact.

These were followed by a short interregnum and an apparent lull. As of 2019, there has been a notable resurgence in the formation of tropical depressions (cyclones) that have reached the Mozambican coast.

The 2018/2019 season witnessed a record number of cyclones formed in the Indian Ocean, some of which made landfall in Mozambique¹. For this reason,

¹ The 2018/2019 southwest Indian Ocean cyclone season was the costliest and most active on record since official records began in 1967. Furthermore, it was the deadliest cyclone season recorded in the southwest Indian Ocean, surpassing the 1891-1892 season, in which the 1892 cyclone in Mauritius devastated the entire site (TEMPORADA..., 2023).

the National Institute for Socio-environmental Disaster Management (*Instituto Nacional de gestão de Desastres Socioambientais* – INGD), which replaced the INGC after the fateful cyclones Idai and Kenneth, in 2019, now designates the meteorological period from November to March/April as the cyclonic season.

The increase in socio-environmental disasters in Mozambique allowed the restructuring and solidification of its disaster management structure, including the corresponding legislation, which is growing.

The country started to receive a lot of material and financial aid to deal with humanitarian assistance, as well as for socio-environmental disaster recovery. As a result, acts of corruption, mismanagement, and embezzlement of funds began to emerge.

For example, very recently the World Bank, one of Mozambique's main donors of humanitarian assistance, had to issue an ultimatum to the INGD for the restitution of around 32.5 million² meticaís that had been allocated to it, whose use was not duly justified. Consequently, the World Bank suspended financial assistance to the INGD. In the last floods, which occurred in January 2023 in Boane-Maputo, the INGD showed weaknesses in its response capacity to help the victims.

In February and March 2023, the country was devastated by cyclone Freddy, which had a record duration of more than a month³ in two attacks (Inhambane and Zambézia provinces), from the Mozambique channel.

After the occurrence of cyclone Freddy, the inability of national authorities in terms of prevention, mitigation, and recovery from the damage caused by the weather came to light. It is clear that this inability stemmed from the fact that international partners and donors did not share the usual help in human, material and, above all, financial means.

5 Cyclones Idai and Kenneth: a sword of Damocles?

In the night between the 14th and 15th of March, 2019, the central region of Mozambique, in particular the city of Beira and neighboring regions,

² The equivalent of 507,812.50 USD.

³ Freddy is a longer-lasting tropical cyclone, according to the World Meteorological Organization. The cyclone developed off the north coast of Australia in early February and then traveled thousands of kilometers across the southern Indian Ocean, impacting Mauritius and La Réunion before reaching Madagascar two weeks later and then Mozambique, on February 24th. It hit central Mozambique for a second time on Sunday, March 12, ripping off roofs from buildings and causing widespread flooding around the port of Quelimane, before moving inland towards Malawi with torrential rains that caused landslides (CARDOSO, 2023).

was devastated by a cyclone named Idai. According to Ndapassoa (2020), the cyclone was intensity 4 on the Saffir-Simpson scale, with winds of over 240 km/h, accompanied by heavy rainfall (200 mm/24h).

The passage of the cyclone resulted in more than 600 fatalities, 1,600 injured people and 1.5 million people affected, of whom 750,000 needed urgent humanitarian assistance. The massive material damage caused a state of natural and humanitarian calamity (NDAPASSOA, 2020).

About a month later, on April 25, 2019, cyclone Kenneth hit the Mozambican coast, more specifically in the northern part, between the districts of Macomia and Mocímboa da Praia, in the province of Cabo Delgado.

Formed in the Indian Ocean, after Idai, cyclone Kenneth was one of the most devastating, with winds of around 220 km/h and torrential rains that affected not only the northern region of Mozambique, but also neighboring Madagascar, Seychelles, Comoros, Tanzania, and Malawi. Until then, it was the worst cyclone to hit the African continent (PDNA, 2019).

The aftermath of cyclone Kenneth passing through the northern region of Mozambique resulted in more than 199,836 people affected, including dead, injured, and displaced people in need of urgent humanitarian assistance. The overall damage caused by the passage of the aforementioned cyclone was estimated at around US\$ 188 million (NAÇÕES..., 2019).

Other cyclones followed with frightening frequency: in December 2020, cyclone Chalane and, in January 2021, cyclone Eloise lashed central Mozambique with strong winds and torrential rains. In March 2021, cyclone Guambe, although relatively weak in intensity, hit the Mozambican coast. In March 2022, cyclone Gombe hit central/northern Mozambique, precisely in the provinces of Nampula, Zambézia and Tete, classified as category 3 on the Saffir-Simpson scale, with winds of 150-185 km/h and heavy rainfall (200 mm/24h), causing floods and a situation of natural calamity (NAÇÕES..., 2022).

Mozambique has a coastline of almost 2,800 km, approximately 20.5 million people, that is, more than 60% of the population lives in the coastal zone. In many places this consists of lowlands with sandy beaches, estuaries, and mangroves. Survival and daily life in these areas depend to a large extent on local resources such as rain-fed agriculture and fisheries, while infrastructure is poor or non-existent. These conditions mean a high vulnerability of people to tropical cyclones and sea level rise (INGC, 2009).

Due to its geographic location and climate changes, Mozambique has become a kind of gateway to the continent for these natural phenomena, when they

are directed to the southern region of the continent (NDAPASSOA, 2020).

Mozambique does not only have socio-environmental disasters, derived from climate change, as its misfortune. Recently, the country has announced the discovery of huge deposits of natural gas and oil, whose exploitation could lift the country out of poverty. However, due to climate change, the United Nations has been involved in agreements to reduce, if not even abolish, the use of fossil fuels. Thus, climate change and the discovery of new natural resources make Mozambique a country of contrasts: is it not a sword of Damocles?

6 Management of natural disasters in a context of poverty

Mozambique gained independence from Portugal in 1975, and soon experienced a civil war that lasted 16 years. During that period, the country experienced its worst economic indicators, which left it in a situation of near economic bankruptcy.

Currently, Mozambique has a population of 32,163,045 inhabitants and a moderate population density of 40 people per km². It ranks 129 by nominal GDP. The national debt, in 2020, was US\$ 16,697 million (119.02% debt/GDP ratio), and the *per capita* public debt is US\$ 534 per inhabitant. In terms of the Human Development Index (HDI), the country accumulated 0.446 points in 2021, occupying the 185th position in the table of 189 countries (LISTA..., 2023). Mozambique is in 133rd place in the *Doing Business* ranking (COUNTRY..., 2023).

According to Castel-Branco (2010, p. 14; our translation):

In an open economy, international terms of trade and international transfers between economies, firms and citizens affect poverty dynamics as much or more than internal inequality in income distribution. In fact, Mozambique is a good example of this problem, as the high levels of foreign aid, the inflow of private transfers from non-resident citizens (US\$ 82 million in 2008) and the outflow of income from large mineral and energy projects (US\$ 680 million in 2008) must play a fundamental role in explaining economic growth, differentiation and inequality, distribution, and levels of consumption.

Approaching the problem of poverty in Mozambique becomes much more difficult and complex when we add the problems of unsustainable public debt, the rampant corruption rate, and also the conflicts generated by the exploitation of newly discovered natural resources.

For a few decades now, political discourse has proclaimed the eradication of

absolute poverty as the main goal to be achieved. For this purpose, in the various government cycles, medium and long-term development plans have been outlined, at an internal level.

At the external level, the country, as a member of the Regional (African Union) and sub-regional (SADC) Development Communities, also participates in development plans in partnership with other member countries. Still at the international level, Mozambique was involved in the so-called millennium goals, which, as is known, were not achieved. Currently, there is talk of sustainable development and new goals are being set.

Notably, there are so many efforts to combat and reduce poverty in Mozambique, which is why the outbreak of extreme weather events constitutes a serious setback. In the last 20 years, the high frequency, alternation, and intensity of extreme weather events has become a growing threat to national development (CONSELHO..., 2017).

However, despite all the setbacks, reality shows that the country has been able to manage the damage resulting from weather events. What accounts for this contrast? Firstly, one must analyze how the country has organized itself to face and manage the cyclical occurrence of extreme weather events and what mechanisms have been activated for their mitigation and management.

With the aim of providing a quick and efficient response to situations of natural disasters, Presidential Decree no. 44/80 determined the creation of the Department for Preventing and Combating Natural Disasters (*Departamento de Prevenção e Combate às Calamidades Naturais* – DPCCN), integrating it into the then National Planning Commission (MOÇAMBIQUE, 1999).

In 1999, through Presidential Decree no. 4/99, the DPCCN was abolished and, in its place, Presidential Decree no. 38/99 created the National Institute for the Management of Natural Calamity (*Instituto Nacional de Gestão de Calamidades* – INGC), a “public institution, endowed with legal personality, administrative and financial autonomy, with the objective of directing and coordinating the management of disasters, namely, in actions of prevention and relief to victims in risk areas or affected by disasters” (MOÇAMBIQUE, 1999, p. 7; our translation). The INGC came to be under the Ministry of Foreign Affairs and Cooperation until 2005, when it was transferred to the Ministry of State Administration.

The creation of the INGC responded to this concern, taking on an anthropocentric approach, that is, placing the protection of people’s lives and their belongings at the center of its attention. INGC’s vocation is not only to save lives and goods, but also to prevent new socio-environmental disasters. This aim naturally

involves a thorough study of the country's geographical and natural conditions, in order to plan the management process for future eventual disasters. From the year 2000, the country began to adopt a proactive approach to reduce the vulnerability of local communities, economy and infrastructures (CONSELHO..., 2017).

It was in this context that exhaustive studies were carried out in some regions of the country prone to the occurrence of extreme weather events, in particular floods. Thus, for example, analyses were carried out on the management of natural risks in the lower Limpopo region, in the province of Gaza, based on the fact that educating the population to reduce vulnerability starts with knowledge of the local reality.

The study in question served to form disaster management committees, each comprising 18 people. These committees sought to contribute to reducing the vulnerability of populations and reducing the negative consequences of floods, based on prevention and mitigation actions (DGEDGE, CHEMANA, 2018).

A similar study on the response to climate change in Mozambique, centered on the Zambezi, Púngue, and Limpopo river basins, was conducted by the consultant Georg Petersen and the INGD, addressing the water aspect. From this perspective, the mapping and assessment of the risk of floods, as well as protection against floods and mitigation measures were carried out (PERETSEN, 2012).

Along the same lines, and by the same consultant, other studies were carried out addressing aspects such as water, drought, and rainfall in Mozambique. In the case of floods, the study produced recommendations consisting of the adoption of the “*living with floods*” concept, that is:

- a) construction of small dams, raised embankments for housing and protection of communities;
- b) conservation of upstream basins;
- c) development of exploration policies;
- d) construction of surface spillways and small dams to retain floods;
- e) adapting the operation of large dams;
- f) development of forecasting and warning systems;
- g) preparation of populations (PERETSEN, 2012).

Mozambique's weakness and vulnerability began to become evident as exposure to the risks of climate change increased, since everything depended on the country's adaptive capacity, which saw an exponential increase in economic losses due to climate disasters (VAN LOGCHEM; QUEFACE, 2012). It was in this context that the Mozambican government, through the INGC and its partners, carried out a nationwide survey entitled *Responding to climate change in Mozambique Phases I and II*.

At the end of the first phase, which took place between 2008 and 2009, a detailed report (SREX) on climate change was prepared, which expanded its definition and placed these extreme events at the top of concerns (VAN LOGCHEM; QUEFACE 2012).

This study, which was the first to apply climate change models in Mozambique, provides significant insight into how climate change could impact national investment and poverty reduction plans over the next five to ten years, threatening large portions of the coastline, where development and population settlement are located.

The study also showed that in Mozambique climate change and the risk of socio-environmental disasters are correlated, since most of the impacts of climate change are felt in the form of aggravation of risk, propagation, intensity, and frequency of occurrence of socio-environmental disasters.

The second phase of research took place from 2009 to 2012 and focused on identifying scientific solutions to the potential impacts of climate change. For this purpose, three pillars were adopted:

- a) *The strategic pillar* analyzed how Mozambicans need to prepare for the impacts of climate change by 2030, from a disaster risk perspective, and what actions and funding will be needed to achieve this goal.
- b) *The capacity building pillar* identified the most effective means of building skills and information bases needed for science research, education, and policy making.
- c) *The implementation pillar*, in turn, identified adaptation measures and costs for specific high-risk disaster areas, high-impact areas, organized around five themes: coastal protection; early warning; water; agriculture; and cities and the private sector.

During the second phase of the research, detailed studies were carried out in 11 coastal cities considered at high risk of vulnerability, as well as along the entire perimeter of the Mozambican coast (VAN LOGCHEM; QUEFACE 2012).

As a result of this exercise, the following aspects stand out:

1. Priority adaptation and funding measures were determined for the 11 coastal cities considered to be at high risk. These range from coastal management options, through the definition of safe areas, to engineering measures.
2. An adaptation economic rationale was calculated for the cities of Maputo, Beira, and Quelimane (including net loss avoided until 2030 if adaptation measures are implemented, capital expenditure required over the next five years to implement the identified adaptation portfolios and proposed insurance for

risk transfer), culminating in a city adaptation strategy for the period 2010-2015.

3. A complete business plan, with funding and legal structures, was prepared and compiled for the Climate Change Knowledge Center, containing four main objectives: research, advice, awareness/dissemination, and training.
4. An early-warning water decision support system was developed for the entire Zambezi basin, covering 1.4 million km² (nearly twice the size of Mozambique), to simulate the impacts of climate-induced changes and new water resource developments (such as irrigation projects and dams) on downstream infrastructure and water availability. This system is expandable to other river basins.
5. Early mapping of changes in flood and risk areas resulting from climate change was carried out for the Zambezi, Limpopo, and Púnguè rivers.
6. Analyses of urban flooding were carried out and detailed solutions were proposed, with defrayal, for a high-risk site in Maputo. This is expandable to other high-risk locations.

However, it is still unclear how the results of these studies have been used for management and planning systems, especially, for example, regarding land use and why there are still people in areas considered at risk of flooding.

Another, more comprehensive study consisted of the analysis of climate risks throughout the Mozambican territory, based on rainfall records with data for 36 years (Chirps), from 1981 to 2017; temperature record from 1981 to 2015; and analysis of vegetation index satellite data from 1981 to 2015 (MOÇAMBIQUE, 2017).

The study had the following objectives:

- a) Contribute to the production of evidence and understanding the impact of climate change on food security.
- b) Assist in technical training and knowledge sharing.
- c) Inform decision-makers and encourage investment.
- d) Improve policies, plans, and investments.

Based on the study in question, it was possible to proceed to:

- a) identification and design of climate change adaptation models;
- b) climate change awareness/knowledge building, microinsurance, livelihood diversification options;
- c) monitoring food security and early warning systems by identifying livelihoods and areas that are particularly vulnerable to specific climate hazards;
- d) emergency preparedness and response to events related to El Niño, identifying populations most vulnerable to the impacts of this phenomenon, in order to

- guide the definition of priorities in potential emergency responses;
- e) drawing up a map of life forms by province of Mozambique;
- f) classification of resilience of different forms of life to climatic risks;
- g) preparation of a national strategy with targets to be achieved by 2030 to mitigate the growing risks of climate change disasters; and
- h) assessment of impacts of future climate risks on ways of life and food security (CONSELHO..., 2017).

The management of socio-environmental disasters requires an integrated system of robust mechanisms and institutions that work based on well-defined norms and rules. In the case under analysis, a growing legislation is being approved as the reports of studies and research indicate that it is necessary. This evolution of legislation is highlighted below:

- a) Law no. 16/91 (Water Law) and the respective regulation (Decree no. 29/2017, of July 14), which establishes the water resources that belong to the public domain, the principles of water management, and the need to inventory all the existing water resources in the country for their correct management.
- b) Law no. 19/97 (Land Law) and the respective regulation (Decree no. 66/98, of December 8), as a regulatory instrument for the right to use and benefit from land, so that this important resource is valued and contributes to the development of the national economy.
- c) Law no. 20/97 (Environment Law) and the respective regulation (Decree no. 54/2015, of December 31), which establishes the legal bases for the correct use and management of the environment and its components, with a view to materializing a system of sustainable development in the country.
- d) Law no. 02/2002, which creates the State's financial administration system, and the respective regulation (Decree no. 17/2002, of June 27), which establishes and harmonizes rules and procedures for programming, management, and control of the public treasury for its effective and efficient use.
- e) Law no. 8/2003 (law on local State bodies) and the respective regulation (Decree no. 11/2005, of 10 June), which establishes the organization, powers and functioning of provinces, districts, administrative posts, and localities as deconcentrated state bodies, following a territorial approach. The law designates the district level as the main territorial unit for the organization and functioning of local administration and the basis for planning economic, social, and cultural developments.
- f) Law no. 19/2007 (territorial planning law) and the respective regulation (Decree no. 23/2008, of July 1st), which regulates the relations between the

different levels of Public Administration, its relations with the other public and private subjects, representatives of different economic, social, and cultural interests, including local communities.

- g) Law no. 7/2008, which establishes the legal framework for the promotion and protection of children's rights in Mozambique.
- h) Law no. 15/2014 (disaster management law) and the respective regulation (Decree no. 07/2016 of March 1st), which establishes the legal regime for disaster management, including prevention, mitigation of the destructive effects of disasters, the development of relief and assistance actions, as well as reconstruction and recovery actions in the affected areas.
- i) Law no. 10/2020 (law on the management and reduction of the risk of disasters and extreme events) and the respective regulation (Decree no. 76/2020 of September 1st), which establishes the legal regime for the management and reduction of the risk of disasters, comprising risk reduction, disaster management, sustainable recovery for building human, infrastructural and ecosystem resilience, as well as adapting to climate change.
- j) Presidential Decree no. 01/2015, which creates the Ministry of Gender, Children, and Social Action.
- k) Decree no. 45/2006, which approves the regulation for the prevention of pollution and the protection of the marine and coastal environment.
- l) Decree no. 60/2006, which approves the regulation of urban land applicable to legally existing cities and towns and in human settlements or population clusters organized by an urbanization plan.
- m) Decree no. 78/2019, which approves the regulation on flood protection dams.
- n) Resolution no. 12/98, on organized and integrated intervention that guarantees social assistance and other types of social support to individuals, social groups, and families in situations of poverty and social exclusion.

The approval of this legislation, by itself, does not yet mean added value; more critical voices question how the country ensures the implementation of all these legal instruments and what the result is of their application in the management of disasters. Another issue is that, even in the face of all these legal instruments, the financial component has yet to be included in these packages, considering that the exploitation of natural resources, such as gas and coal, already generates revenue for the country.

The lack of solutions to these and similar issues reflects weaknesses in the application of socioeconomic policies and good governance.

7 Recovery after socio-environmental disasters in a context of poverty

As already mentioned, one of the main concerns of the Mozambican government was to ensure that the occurrence of extreme weather events did not jeopardize the previously drawn up national development plans.

That's how, in 2006, the Government approved the Master Plan for the Prevention and Mitigation of Natural Disasters (PDPMCN) for a period of 10 years (2006-2016), and subsequently readjusted this period for another 13 years (2017-2030), in order to align it with the main instruments that guide the actions that contribute to reducing the risk of disasters on global and local scales, namely the Sustainable Development Goals and the Sendai Framework⁴ for Disaster Risk Reduction 2015-2030 (COUNCIL, 2017).

The vision of the Master Plan for Disaster Risk Reduction 2017-2030 is to prioritize “the population, their livelihoods and health and public and private infrastructure that are resilient to extreme events and the effects of climate change and with a consolidated culture of *prevention, readiness, response and recovery*” (CONSELHO..., 2017, p. 7; our translation emphasis added).

Despite the gradual change from the prevention and management of natural disasters to the recovery aspect, a fact that, by the way, dictated the need to reformulate the INGC into the National Institute for Socio-environmental Disaster Management (*Instituto Nacional de Gestão de Desastres – INGD*)⁵, the issue of calamity prevention still upholds primacy.

In fact, the INGD is the result of an evolutionary process of institutional transformation that began in 1980, with the creation of the DPCCN. Disaster management plans and programs had to embrace new matrices, which not only put human beings and their assets at the center of attention, but also a whole set of new visions of the 21st century, such as the interweaving of sustainable development with human rights.

It was necessary to consolidate and deepen the thesis according to which the

4 The Sendai Framework for Disaster Risk Reduction 2015-2030 was adopted at the Third United Nations World Conference in Sendai, Japan on 18 March 2015. It is the result of stakeholder consultations initiated in March 2012 and intergovernmental negotiations held from July 2014 to March 2015, supported by the United Nations Office for Disaster Risk Reduction, at the request of the UN General Assembly. The Sendai Framework is the successor instrument to the Hyogo Framework for Action (HFA) 2005-2015: Building the resilience of nations and communities to disasters.

5 Through Presidential Decree no. 41/2020, the National Institute for Disaster Risk Management and Reduction, abbreviated to INGD, was created as the Coordinating Entity for Disaster Risk Management and Reduction, revoking Decree no. 38/99, of June 10, which creates the National Institute for Calamity Management (INGC).

resurgence of extreme climatic phenomena are, above all, related to human behavior. Thus, it becomes imperative to stop thinking that the occurrence of extreme weather events is a purely natural phenomenon or the result of chance. It is necessary to consider it as a boomerang effect between man's action against nature and its response/reaction, in the form of extreme weather events, increasingly frequent and intense on a global scale (GLOBAL..., 2021).

Considering the asymmetries that were often committed in the process of saving and helping victims of socio-environmental disasters and climate change, the INGC strategic plan established the following main objectives (INGC, 2016, p. 7):

- Ensure the participation and equal access of women and men throughout the process of disaster risk reduction and adaptation to climate change.
- Strengthen the capacity of the INGC team, key sectors, and partners to adequately respond to the socio-economic needs of groups considered vulnerable in the assessment of vulnerabilities, response planning, with reference to the contingency plan and the balance of the rainy and cyclone season.
- Produce guidance documents on equitable access to resources by women and men for all sectors and partners involved in the period of recovery, reconstruction, and rehabilitation.
- Reinforce awareness sessions with men to discuss the importance of women's participation in all processes of prevention, disaster risk reduction – mitigation and recovery;
- Strengthen the coordination of the improvement of social protection services to vulnerable groups in actions to reduce the risk of disasters and adapt to climate change.

With these objectives, the INGC intended not only to correct the asymmetries between men and women, but also to respect and value the constitutional principle of universality and equality provided for in art. 35 of the 2004 Constitution of the Republic of Mozambique (MOÇAMBIQUE, 2004).

Regarding the transition process from the management of natural disasters to that of risk reduction and post-disaster recovery, it should be noted that the INGD constitutes a kind of turning institution and was designed as a response to new challenges imposed by climate change in the country and the world.

Indeed, unlike the INGC, which had a more “defensive” but proactive role, the INGD was born under the sign of robustness, contemplating a more solid structure, focused on the great future challenges.⁶

⁶ The INGD has the following structure: five divisions: prevention and mitigation; development of arid and semi-arid zones; post-disaster reconstruction coordination; planning and cooperation;

It was for this reason that, in the new structure of the INGD, prevention and mitigation issues were raised to the institutional category of division, in partnership with those of coordination of post-disaster reconstruction.

Thus, the prevention and mitigation division has, among others, the following competencies (INGD, 2020):

- a) Implement disaster risk prevention and mitigation policies and strategies.
- b) Ensure humanitarian aid and rapid recovery of disaster victims.
- c) Ensure the inclusion of disaster risk management subjects in the education system at all levels.
- d) Create, equip, and train local disaster risk management committees.
- e) Carry out training and capacity building, at various levels, in disaster risk management.
- f) Carry out other activities that are determined by superiors under the terms of the applicable legislation.

From the functions of this division, we can notice that, in cases of socio-environmental disasters, the Mozambican government's strategy consists of ensuring not only effective humanitarian assistance, but also a rapid recovery of the way of life of victims of socio-environmental disasters. This ensures that socio-environmental disasters have less impact on previously drawn up national development plans.

As for the post-disaster reconstruction coordination division, it can be said that it has the following competencies (INGD, 2020).

- a) Ensure resettlement and rapid replacement of post-disaster infrastructure and basic social services.
- b) Ensure planning and land use in disaster risk zones.
- c) Promote the construction of infrastructures resistant to natural phenomena.
- d) Carry out other activities that are determined by superiors under the terms of the applicable legislation.

In its structure, the INGD provides for a planning and cooperation division precisely to, among other functions, carry out the multisectoral coordination of the preparation of contingency plans and the process of updating the Master Plan for Disaster Risk Reduction and promote cooperation agreements between the INGD and other partners and economic agents.

In terms of calamity management, mitigation and prevention are treated dif-

Administration and Finance. A national emergency operating center; two national units: civil protection; fund management and disaster risk reduction; three offices: audit and internal control; communication and image and social and environmental safeguards; and two departments: human resources and procurement.

ferently from reconstruction and recovery. As a rule, the former take place before or during disasters, and the latter only after they occur.

However, assigning prevention, mitigation, reconstruction, and recovery competencies to the same INGD division proved to be counterproductive. It was for this reason that, after the occurrence of Cyclone Idai, it was decided to create the Post-Cyclone Reconstruction Office (Grepoc)⁷, whose headquarters are located in the city of Beira. The role of this office is to oversee planning, implementation, monitoring, and evaluation, as well as post-cyclones recovery and reconstruction in affected provinces⁸.

When creating Grepoc, the Mozambican government's vision was that this office would be endowed with a reduced structure, but one that would be more flexible and autonomous so that, in real time, it could conceive and produce a post-disaster reconstruction program with concrete short-, medium-, and long-term actions.

After the occurrence of cyclones Idai and Kenneth, the Mozambican government, through Grepoc, carried out a post-disaster assessment in a global partnership, which included the World Bank, the United Nations System, and the European Union (EU), using the internationally recognized Post-Disaster Needs Assessment Methodology (PDNA, 2019).

The PDNA was carried out in Mozambique between April 16 and May 2, 2019, following the standard methodology developed by the United Nations System, the World Bank, and the European Union, which integrates a collection of analytical methods, tools and techniques for post-disaster assessments and reconstruction planning. The assessment was based on primary and secondary data provided by the Mozambican government and development partners, as well as interviews and field visits to affected areas.

To carry out the PDNA, the Mozambican government had the support of the World Bank, the European Commission, the African Development Bank, the Office of the UN Resident Coordinator, UNDP, FAO, WFP, Unfpa, Unicef, WHO, UN-Habitat, ILO, IOM, UN Women, Unaid, Usaid etc., in addition to national partners such as CTA, the business sector of Beira represented by the

⁷ Grepoc was created by Decree n. 26/2019, and its powers were expanded by Decree n. 45/2019.

⁸ Following the devastation caused by Cyclone Idai in central Mozambique, the Government created, on April 11, 2019, the Post-Cyclone Idai Reconstruction Office (Grepoc), under Decree no. 26/2019, to oversee planning, implementation, monitoring and evaluation, recovery, and reconstruction in affected provinces. On May 22, 2019, Grepoc's mandate was extended through Decree no. 45/2019, to include the recovery and reconstruction of areas affected by Cyclone Kenneth in northern Mozambique. Grepoc has its headquarters in Beira, capital of Sofala – the most affected province, in addition to sub-offices in Maputo and Pemba (GREPOC, 2023).

Commercial Association of Beira (ACB).

In the specific case of Cyclone Idai, shortly after its occurrence, the Mozambican government designed a program to rebuild the city of Beira and infrastructure damaged by the March 2019 floods, called the Post-Cyclones Reconstruction and Recovery Program (Prepoc). The Prepoc was prepared based on the main conclusions and recommendations of the PDNA and was complemented by a consultation process with the Government, partners and civil society, in order to gather a common framework for the reconstruction and recovery of the country, especially the areas affected by the cyclones.

Prepoc therefore defines the vision, principles, and strategic objectives for Mozambique's recovery over the next five years in response to Cyclones Idai and Kenneth. It presents institutional and coordination arrangements, planning and implementation modalities, recovery needs across sectors, financing mechanisms and financial management, as well as the monitoring and evaluation framework.

With this important step, the bases were finally created for the separation of components, prevention and mitigation from reconstruction and recovery, leaving the former under the responsibility of INGD, and the latter under the Grepoc.

Afterwards, the Mozambican government organized, in the city of Beira, an international conference of donors to raise the US\$3.2 million needed for the reconstruction of the areas affected by the two cyclones. The event took place on May 31, 2019, and donors pledged to disburse US\$1.2 million, which has already been secured.

In summary, cyclones Idai and Kenneth motivated the development of the PDNA in March 2019 and, in the following month, the creation of Grepoc. Based on the PDNA, the Prepoc was developed, both of which served as the basis for holding the international conference of donors for reconstructing the areas affected by the two cyclones.

8 Challenges of socio-environmental post-disaster recovery in Mozambique: the recoverable and the irrecoverable

8.1 The recoverable

The PDNA identified multidimensional poverty as the human impact of cyclones. In this sequence, the PDNA estimated that multidimensional poverty in Mozambique, in 2019, was 46.5% and with a tendency for inequality to increase. It presented indicators of sudden change in access to health, education, and

housing for a universe of 1.5 million people who were directly affected by Cyclone Idai alone. The PDNA identified the following as vulnerable groups:

- **Women:** With characteristics such as low levels of education, high risks to maternal health, early pregnancy, early marriages, and gender-based violence, the PDNA considers that there is a significant possibility of the feminization of poverty in Mozambique (PDNA, 2019). However, some care must be taken in approaching this issue, since, in statistical terms, in Mozambique, women are the majority in relation to men, and the parameter of feminization of poverty may (not) apply. The Convention on the Elimination of All Forms of Discrimination against Women (Cedew), 1979, expresses concern that, in situations of poverty, women have more restricted access to food, health, education, training, and employment opportunities, in addition to less access to the fulfilment of other needs compared to men. Hence, through this Convention, the United Nations is determined to apply the principles set out in the Declaration on the elimination of all forms of discrimination against women⁹. This aim is reinforced in the protocol to the African Charter on Human and Peoples' Rights on the Rights of Women in Africa (Maputo Protocol, 2003), which, in its art. 15, establishes the right to food security, which, among other things, means ensuring access to drinking water, domestic energy sources, land and means of food production.
- **Children:** make up more than half of Mozambique's population and are among the most deprived in the world. It is estimated that 6.1 million households are headed by children (between 12 and 14 years old). According to PDNA data (2019), there are about 2 million orphans and vulnerable children. Mozambican legislation provides for a law on the rights of the child (Law no. 7/2008), which aims to reinforce, extend, promote, and protect the rights of children. Inspired by the Mozambican Constitution and international instruments on children's rights, this law defines a service policy that must be implemented through a set of articulated actions between government agencies and accredited non-governmental institutions. The actions include guidance and socio-family support, family integration and shelter in protection institutions. According to arts. 1, 66-70 of Law no. 7/2008, such actions seek to preserve, whenever possible, family ties and relationships, in addition to ensuring the non-separation of siblings.
- **Older adults:** security is the third priority in temporary shelters. They are in a situation of food insecurity, due to the lack of income or pension, often

⁹ Proclaimed by the General Assembly in Resolution n. 2,263 (XXII), of November 7, 1967.

depending on family or friends (PDNA, 2019).

- **Persons with disabilities:** in Mozambique, between 2% and 5% of the total population and 14% of children aged 2 to 9 years have a disability. About 70% of children with disabilities live in rural areas, making it very likely that in a humanitarian context they will be neglected (PDNA, 2019).
- For the cases of older adults and people with disabilities, the Mozambican government approved Resolution no. 12/98, of April 9, which safeguards an organized and integrated intervention, aiming to guarantee social assistance and other types of social support to individuals, social groups, and families in situations of poverty, enabling them to participate in the development of the country (NDAPASSOA, 2021).
- **People living with HIV:** the PDNA considers that, in times of crisis due to socio-environmental disasters, people belonging to this group are forced to interrupt antiretroviral treatment (ART), given the destruction of the health network and the drug stock-out.

In case of socio-environmental disasters, the HIV/AIDS pandemic represents a double concern. Indeed, the forced displacement of large population masses and their resettlement in accommodation centers favors a climate of promiscuity. In these cases, HIV/AIDS transmission rates skyrocket, necessitating the adoption of special precautionary measures for their containment.

The PDNA pointed out, in order of priority, the sectors of housing, transport, and food security as those most in need of reconstruction, being short-term in terms of interventions to face the crisis, right after the occurrence of cyclones Idai, i.e. 2019-2020; medium-term, referring to the subsequent two years, which may extend to four years, and long-term, referring to the five years onwards (PDNA, 2019).

For reconstruction purposes, the PDNA pointed out the following reconstruction strategies:

1. Follow a single post-disaster reconstruction program that includes sectoral and local actions.
2. Use international experiences of socio-environmental post-disaster reconstruction processes.
3. Rebuild with materials that are resilient to future socio-environmental disasters.
4. Prioritize the defense of life, the rapid restoration of economic and productive activity and the social protection of vulnerable people.
5. Ensure respect for the territory's zoning plans, prohibit construction in risk

areas, and improve the living conditions of peripheral neighborhoods, providing street openings, drainage, and sanitation, including flood dampening infrastructure and shelter platforms (PDNA, 2019). For the reconstruction and recovery component, Prepoc outlined objectives according to indicators, principles and strategies designed by the PDNA, that is, following a single post-disaster reconstruction program for the entire country and concentrating humanitarian assistance to cyclone victims by priority vulnerable groups. Likewise, Prepoc prioritizes:

- a) the recovery of social and administrative services
- b) resettlement of the population, including basic services
- c) continuous improvement of food safety
- d) the reduction of exposure to risks
- e) encouraging the creation of small and medium-sized companies and contributing to job creation
- f) the balance between infrastructure reconstruction and social and productive recovery (GOVERNO..., 2019).

An important aspect of reconstruction and recovery is undoubtedly the question of financing. All of Prepoc's ongoing projects and reconstruction work require money. It was made available by external donors and partners, but also relied on small internal contributions.

The external partners were the same ones that co-participated in the development of the PDNA, that is, the United Nations, through UNDP, UNICEF, FAO, WFP, UNFPA, WHO, UN-Habitat, ILO, IOM, UN Women, UNAIDS, USAID, World Bank, European Union, and African Development Bank, while internal partners were CTA and ACB.

There were also substantial contributions from individual donors, such as friendly countries and international NGOs working in the field of humanitarian assistance.

One of the conditions that donors and partners impose on the disbursement of money for both humanitarian assistance and the preparation of the Prepoc is transparency in financial management, as well as strict accountability for the use of disbursed funds.

Therefore, Prepoc pays particular attention to the financial management of contributions and donations from international and local partners, as a means of continuing to earn the trust of partners and donors. Thus, the reconstruction and recovery program will use the country's budgeting and financial management instruments, the State's Electronic Financial and Administrative Management

System (e-Sistafe), supported by the Mozambican Development Aid database (Odamos), for tracking donor funding data to harmonize development cooperation in the country with international standards, e.g., OECD/DAC sector coding (GOVERNO..., 2019).

These are the mechanisms that the Mozambican government, through Grepoc, uses both for the prevention and mitigation of risks and external climatic events and for the reconstruction and recovery of damages and losses caused by socio-environmental disasters.

In just over four years of existence of Grepoc and INGD, there are aspects that raise concerns and need to be improved, especially regarding the following factors:

- execution of socio-environmental post-disaster recovery programs and projects more quickly, so that works are delivered in good time
- organization of tenders for the selection of contractors conducted in a transparent manner
- execution of programs and projects to recover infrastructures destroyed by cyclones Idai and Kenneth, in coordination and inclusion of local communities
- improvement in the execution of partnership, interaction, and training programs for artisans in local communities, to provide them with the knowledge and art needed to build resilient infrastructures
- improvement in the financial management of donated funds, avoiding, as much as possible, acts of corruption, misapplication, excessive organization of events and trips
- continuous improvement of transparency in the management of donated funds, with a view to restoring the trust of international partners and donors.

These suggestions result from a reflection after comparing the performance of social and environmental disaster and disaster management bodies in countries prone to socio-environmental disasters, such as Pakistan, Laos, Nepal, and Zimbabwe (PAKISTAN, 2007; LAO PDR, 2009; LAO PDR, 2019; NEPAL, 2013; ZIMBABWE, 2004).

8.2 The irrecoverable

Damages and losses caused to physical infrastructure are recoverable, either through rehabilitation or reconstruction. There is, however, a component of losses which, given their nature, are difficult to recover. The term “irrecoverable” may seem inappropriate or exaggerated, but its use is justified by the fact that the

difficult task of recovering the social fabric in areas affected by socio-environmental disasters overlaps with the already herculean task of rehabilitating the victims of the various armed conflicts that devastated the country in the post-independence period and which justified the creation of a ministry¹⁰ for this area.

In the case of victims of socio-environmental disasters, greater attention is given to recovering from the collective trauma resulting from the outbreak of the disaster. People, who lost everything in a flash, become dependent on practically everything, therefore needing strong psychological support to recover from the effects of the trauma suffered, which, in most cases, has not been possible to satisfy, given the paucity of human resources and a culture of using these means.

There are cases of members of the same family who, due to the socio-environmental disaster, were separated, the whereabouts of some of them being unknown. Children who became orphans and heads of families early are the result of this type of situation.

Consequently, the reunification and resettlement of affected families in poor rural areas point to new disaggregations, in search of better living conditions, both in rural and urban areas. In the latter case, the numbers of begging and marginality have been increasing dramatically because of this phenomenon.

The Mozambican government has the mission of investing in the psychological recovery of victims of socio-environmental disasters and armed conflicts, so that they can overcome the trauma they went through and reintegrate into society as valid people capable of working in accordance with their physical condition.

Conclusion

Climate change and socio-environmental disasters are not recent phenomena. With its resurgence in recent years, the warning signs have also grown. Countries around the world have initiated and intensified deeper studies on how to respond to these phenomena.

The merit of Mozambique, so far, was having managed to be a good student and learn from the transversality of the science of humanitarian assistance with more developed and experienced countries in this matter, in a short period of time.

The vision of the Master Plan for Disaster Risk Reduction 2017-2030 is

¹⁰ The Ministry of Gender, Children and Social Action was created through Presidential Decree no. 01/2015, with power to prepare proposals for laws, strategies, programs, and development plans in the areas of gender, children, and social action, as well as to disseminate them.

the conjunction of a consolidated culture of prevention, readiness, response, and recovery. In other words, as the country became the target, on a cyclical basis, of extreme weather events, there was also an awareness that evil is here to stay and that it is necessary to live with it and transform it into something smaller.

However, disaster management and socio-environmental post-disaster recovery could be at a better stage. The country needs not only to consolidate the institutions created to deal with natural phenomena, but to make them more robust, professional, impartial, and transparent.

These institutions must be able to carry out a work that results in the definitive abandonment, by the populations, of the risk zones and their reintegration in new resettlement centers, with an express recommendation to produce to reduce or even eliminate dependence for their survival.

The new infrastructures built in the context of post-disaster recovery must be as resilient as possible to avoid entering a vicious cycle of destruction-reconstruction.

It is necessary to adopt transparent financial management models that make donors and partners comfortable, which implies, *inter alia*, making communities and their needs the focus and priority of their action, the reason for its existence. All expenses and expenditures on means and equipment for work, travel, and events must not exceed those intended for humanitarian assistance and post-disaster recovery programs.

On the other hand, the country ought to know how to manage its revenues in the best possible way, especially those from the exploitation of mineral resources, so that in a short time it will be able to contribute to humanitarian assistance programs.

Mozambique must be able to combine and harmonize the various reconstructive/recovery programs in development programs. The country must stop being in a situation of total financial dependence on partners and donors. If the problems are Mozambique's, the solution cannot come only from partners and donors.

It is concluded that, in terms of disaster management and socio-environmental disaster recovery, Mozambique may even have experiences to share, but it still has a long way to go to become a reference in the region and in the world.

References

- CARDOSO, H. R. ONU apoia resposta ao ciclone Freddy. *Nações Unidas Moçambique*, 15 mar. 2023. Available from: <https://mozambique.un.org/pt/223253-onu-apoia-resposta-ao-ciclone-freddy>. Access on: Jul. 30, 2023.
- CASTEL-BRANCO, N. Introdução. In: BRITO, L. et al. *Pobreza, desigualdade e vulnerabilidade em Moçambique*. Maputo: IESE, Maputo, 2010, p. 11-18. Available from: https://www.iese.ac.mz/lib/publication/livros/pobreza/IESE_Pobreza.pdf. Access on: Jul. 30, 2023.
- CONSELHO de Ministros. *Plano Director para a redução do risco de desastres 2017-2030*. Aprovado pela 36ª sessão ordinária do Conselho de Ministros, 17 out. 2017. Available from: https://www.ingd.gov.mz/wp-content/uploads/2020/11/PDRRD_BROCHURA_FINAL_IMpressao.pdf. Access on: Jul. 30, 2023.
- COUNTRY Ranking by Ease of Doing Business. *Take-Profit.ORG, Your Forex Market Guide*. Available from: <https://archive.doingbusiness.org/en/rankings>. Access on: Jul. 30, 2023.
- DGEDGE, G.; CHEMANA, C. Os comités locais de gestão do risco de calamidades e a educação sobre inundações no baixo Limpopo, Moçambique. *Territorium*, Coimbra, v. 2, n. 25, p. 123-132, 2018. Available from: https://impactum-journals.uc.pt/territorium/article/view/1647-7723_25-2_10/4848. [HTTPS://DOI.ORG/10.14195/1647-7723_25-2_10](https://doi.org/10.14195/1647-7723_25-2_10). Access on: Jul. 31, 2023.
- GFDRR. *Moçambique: a recuperação de cheias recorrentes 2000-2013*. Estudo do caso para o quadro de recuperação de desastres. Série de Estudos de Caso Nacionais. Guião para o quadro de recuperação de desastres, ago. 2014. Available from: https://www.gfdrr.org/sites/default/files/publication/report-mocambique-recuperacao-cheias-recorrentes-2014_0.pdf. Access on: Jul. 31, 2023.
- GLOBAL Climate Risk Index 2021. Who suffers most from extreme weather events? Weather-related loss events in 2019 and 2000 to 2019. *Germanwatch*, 2021. Available from: <https://www.germanwatch.org/en/19777>. Access on: Jul. 31, 2023.
- GOVERNO elabora programa de recuperação pós-calamidades, Preproc. *Portal do Governo de Moçambique*, 3 abr. 2019. Available from: <https://www.portaldogoverno.gov.mz/por/Imprensa/Noticias/Governo-elabora-programa-de-recuperacao-pos-calamidades-PREPOC>. Access on: Jul. 31, 2023.
- GREPOC. Bem vindos ao website do Greproc. *Greproc.org*, 2023. Available from: <https://www.greproc.org.mz/poc/>. Access on: Jul. 31, 2023.
- INGC. *Estudo sobre o impacto das alterações climáticas no risco de calamidades em Moçambique*. Relatório Síntese. Segunda versão. INGC, maio 2009. Available from: https://biblioteca.biofund.org.mz/wp-content/uploads/2019/01/1548337662-INGC_Segunda_Versao_Alteracoes_Climaticas_Low.pdf. Access on: Jul. 31, 2023.
- INGC. *Plano Estratégico do Instituto Nacional de Gestão de Calamidades 2016-2020*. INGC a caminho das Mudanças nas Relações de Género. Maputo, 2016. Available from: <https://www.ingd.gov.mz/wp-content/uploads/2020/11/Plano-Estrategico-de-Genero-INGC-2016-2020-1.pdf>. Access on: Jul. 31, 2023.
- INGD. *Atribuições e competências das divisões*. INGD, 2020. Available from: https://www.ingd.gov.mz/?page_id=2427. Access on: Jul. 31, 2023.

LAO PDR. *Legal Preparedness for Responding to Disasters and Communicable Disease Emergencies*: Study Report. LAO PDR, 2009. Available from: https://disasterlaw.ifrc.org/sites/default/files/media/disaster_law/2020-09/IDRL_Red-Cross-Report-Laos_v27-ENG.pdf. Access on: Jul. 31, 2023.

LAO PDR. *Disaster Risk Reduction In LAO PDR*: status report 2019. LAO PDR, 2019. Available from: https://reliefweb.int/attachments/11ee7862-c016-37c0-81e0-06504dad05f5/68230_3laop-drdmstatusreport.pdf. Access on: Jul. 31, 2023.

LISTA de países por Índice de Desenvolvimento Humano (IDH). *Wikipédia, a enciclopédia livre*. Available from: https://pt.wikipedia.org/wiki/Lista_de_pa%C3%ADses_por_%C3%8Dndice_de_Desenvolvimento_Humano. Access on: Jul. 30, 2023.

MANANE, J. VAZ, Á. C.; VIVEROS, C. Avaliação do risco de cheias: uma aplicação à planície do rio Limpopo em Moçambique. *In*: SILUSBA, 14, 16 a 20 set. 2019, Praia, Cabo Verde. *Anais* [...]. Available from: https://www.aprh.pt/14silusba/docs/14SILUSBA_88.pdf. Access on: Jul. 30, 2023.

MILLER, J. Moçambique – cheias 1999-2000. *Actividade de doação para o reassentamento da população após as cheias em Moçambique*. Usaid, jul. 2002. Available from: https://sarpn.org/documents/d0000811/P907-Mozambique_floods_1999-2000_USAID_072002_P.pdf. Access on: 18 jul. 2022.

MOÇAMBIQUE. Presidência da República. *Decreto Presidencial n. 38/99*. Maputo, 10 jun. 1999. Available from: <https://www.informea.org/sites/default/files/legislation/moz21993.pdf>. Access on: Jul. 30, 2023.

MOÇAMBIQUE. Assembleia da República aprova a Constituição da República de Moçambique (CRM). *Boletim da República*, 1 série, n. 51, 22 dez. 2004. Available from: https://www.masa.gov.mz/wp-content/uploads/2018/01/Constituicao_republica_mocambique.pdf. Access on: Jul. 31, 2023.

MOÇAMBIQUE. Análise de riscos climáticos – VAM – Food Security Analysis, WFP, 2017. Available from: <https://docs.wfp.org/api/documents/WFP-0000129989/download/>. Access on: Jul. 31, 2023.

MOÇAMBIQUE. Presidência da República. Lei n. 10/2020. Lei de Gestão e Redução do Risco de Desastres. *Boletim da República*: Publicação Oficial da República de Moçambique, 1 série, n. 162, p. 1.163-1.172, 24 ago. 2020. Imprensa Nacional de Moçambique, E. P., 2020. Available from: <https://faolex.fao.org/docs/pdf/moz197255.pdf>. Access on: Jul. 30, 2023.

NAÇÕES UNIDAS MOÇAMBIQUE. Office for the Coordination of Humanitarian Affairs: Urgent Humanitarian Priorities – OCHA, 2019. Available from: <https://reliefweb.int/report/mozambique/mozambique-urgent-humanitarian-prioritie>. Access on: Jul. 19, 2022.

NAÇÕES UNIDAS MOÇAMBIQUE. Ciclone Tropical Gombe: atualização n. 1. Office for the Coordination of Humanitarian Affairs – OCHA, 12 mar. 2022. Available from: https://mozambique.un.org/sites/default/files/2022-03/20220312_Flash_Update_%231_DRAFT_Gombe.pdf. Access on: Jul. 30, 2023.

NDAPASSOA, A. M. *Regimes políticos e direitos humanos em Angola, Moçambique e Guiné-Bissau*: perspetiva comparada. Curitiba: CRV, 2021.

NDAPASSOA, A. M.; MATOS, P. A. O ciclone Idai e os desafios da ajuda humanitária em Moçambique. *Revista Veredas de Direito*, Belo Horizonte, v. 17, n. 38, p. 167-188, maio/ago. 2020. Available from: <http://revista.domhelder.edu.br/index.php/veredas/article/view/1819>. Access on: Jul. 19, 2022.

NEPAL. The Government of Nepal. Ministry of Home Affairs. *National Disaster Response Framework of Nepal*. Nepal, 2013. Available from: <http://drrportal.gov.np/uploads/document/113.pdf>. Access on: Jul. 31, 2023.

OCHA SERVICES. *Humanitarian response*. Available from: <https://www.humanitarianresponse.info/en/operations/mozambique/document/mo%C3%A7ambique-ciclone-idai-pdna-aval-ia%C3%A7%C3%A3o>. Access on: Jul. 31, 2023.

PAKISTAN. The Government of Pakistan. *National Disaster Risk Management Framework of Pakistan*. Pakistan, 2007. Available from: <https://reliefweb.int/attachments/c7bfd268-020c-36d7-885d-acb684bbe54d/NDRMFP.pdf>. Access on: Jul. 31, 2023.

PDNA. *Mozambique Cyclone Idai*. Post Disaster Needs Assessment. Conference Version, May 2019. Available from: https://www.ilo.org/wcmsp5/groups/public/---ed_emp/documents/publication/wcms_704473.pdf. Access on: Jul. 30, 2023.

PERETSEN, G. *Respondendo às mudanças climáticas em Moçambique*. Tema 5, Água. Maputo: INGC, 2012. Available from: <https://hydro-at.poyry.com/zambezi/download/Theme%205%20Water%20PT.pdf>. Access on: Jul. 30, 2023.

TEMPORADA de ciclones no Índico Sudoeste de 2018-2019. *Wikipédia, a enciclopédia livre*. Available from: https://pt.wikipedia.org/wiki/Temporada_de_ciclones_no_%C3%8Dndico_Sudoeste_de_2018-2019. Access on: Jul. 30, 2023.

VAN LOGCHEM, B.; QUEFACE, A. J (eds.). *Respondendo às mudanças climáticas em Moçambique: relatório síntese*. Maputo: INGC, 2012.

VIVÊNCIA. *DICIO, Dicionário Online de Português*. Available from: <https://www.dicio.com.br/vivencia/>. Access on: Jul. 31, 2023.

ZIMBABWE. *Disaster Risk Reduction Efforts in Zimbabwe*. Zimbabwe, 2004. Available from: <http://dpanther.fiu.edu/sobek/FI13022752/00001>. Access on: Jul. 31, 2023.

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