

RECONSTRUCTING LIFE BY IMPROVING THE ENVIRONMENT

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WP OR PROJECT - UEM

LEAP-RE STAKEHOLDER FORUM
KIGALI, 10-13 OCTOBER 2023



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Long-Term Joint EU-AU Research
and Innovation Partnership on Renewable Energy



The LEAP-RE project has received funding from the European Union's Horizon 2020 Research and Innovation Program under Grant Agreement 963530.

Introduction :Context of your study



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Climate change is a reality that worries global society. The consequences are on our doorstep..

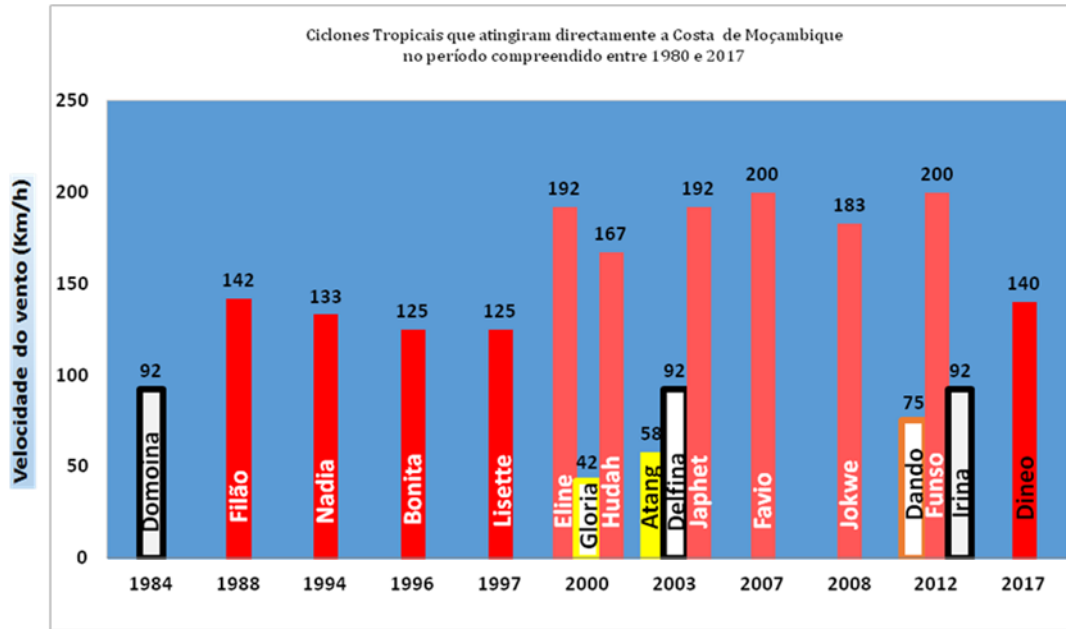
- Longstanding periods of draught, heavy rains, violent cyclones and spectrum of destruction of infrastructures, economies and displacements

are associated with the loss of means or forms of production that include agriculture, fishing and livestock.

The situation is especially cumbersome in Mozambique, where for the last 48 years floods, droughts or cyclones have occurred .

Cyclones of Mozambique in the last 48 years and the most recent (Idai, Kenneth, Eloise, Batsirai, and Freddy)

Tendência Histórica dos Desastres Naturais (1980-2017) - Exemplo de Ciclones



- Sistema Depressonário
- Depressã Tropical
- Tempestade Tropical Moderada
- Tempestade Tropical Severa
- Ciclone Tropical
- Ciclone Tropical Severo

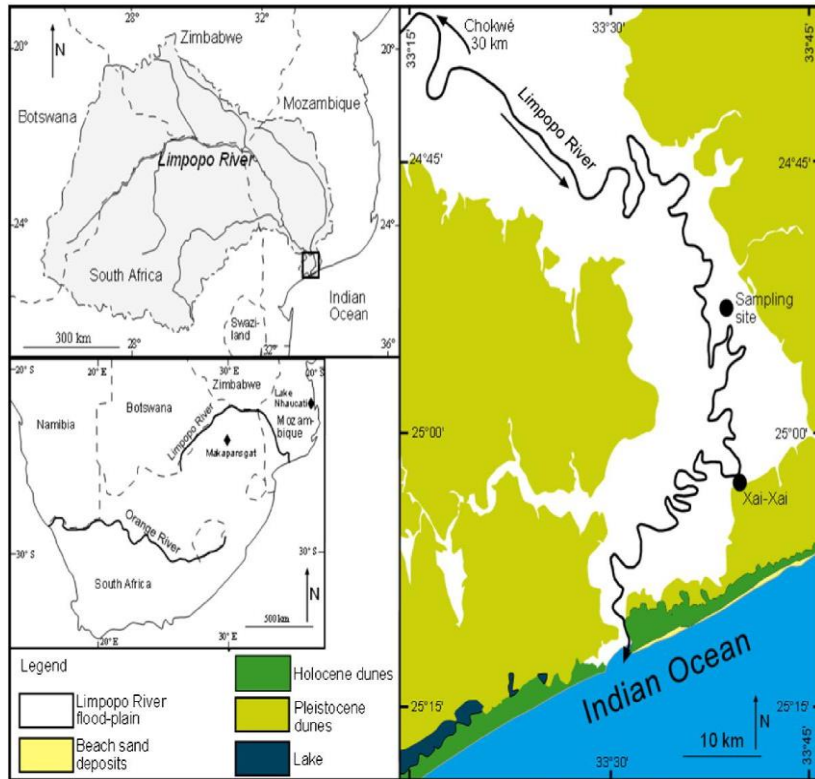
Source: República de Moçambique Conselho de Ministros- Plano Director Para A Redução do Risco de Desastres 2017-2030, 2017.

Ciclone Freddy



Sorce:wikipedia
Fev.2023

The study area, Mabalane District, the source of charcoal and woodfire that causes deforestation and impacts on the climate



The region where the Mabalane District is located along Limpopo Valley in southern Mozambique are affected by combinations of these three weather hazards, that put at risk any action or development initiative. Because of this, people, animals, and plants die from a lack of water or for the excess of water. such that people are forced to cut down forests to earn a living,

Climate disaster have put people in extreme dependence on what the Government can provide, thus that situation jeopardize their livelihood alternatives.

Adapted from [INGC et al. \(2003\)](#) and [GTK Consortium \(2006\)](#).



- disasters both create *urgency* to change, but also *opportunity* to change

- Relevance of your study
- From a community perspective, we aim to understand the acceptability of the use, feasibility of introducing solar cookers in rural communities in southern Mozambique and the socio-economic variables that influence decision-making at individual, institutional and community levels to adopt the technology. of solar cooking in communities affected by dry floods and cyclone
- To contribute to culturally-embedded sustainable and accessible energy use

Other

- It will allow better decisions to be made about the type of stove, model, material to be used for the fabric of the stoves and the costs of its commercialization, taking into account the different characteristics of the community and taking into account the specific needs of each community

- Previous Studies on the subject
 - Renewable energies emerge as an important solution to the global climate adaptation strategy. Current approaches/studies are centered on the need to use energy alternatives (solar energy, water and reduce the use/consumption of biomass) and the production of energy alternatives such as the manufacture of environmentally friendly stoves. of the nexus between climate change and renewable energy versus sustainable development, especially in developing countries like Mozambique, which is experiencing the rigors of tropical cyclones due to a limited capacity to adapt and recover quickly from the danger (Djalante, 2019 quoted by David Chikodra and Nhamo 2021); (Hay & Mimura, 2010); (Helgason 2020).

Deforestation in Mabalane District



Source :DW
Matsinhe 2016



Scenario of forest cutting for food cooking, charcoal trucks and charcoal preparation

From 2001 to 2021 Mozambique due to deforestation, fires, coal production lost 13% of aerboric coverage and 1.36 GT of CO2e emissions

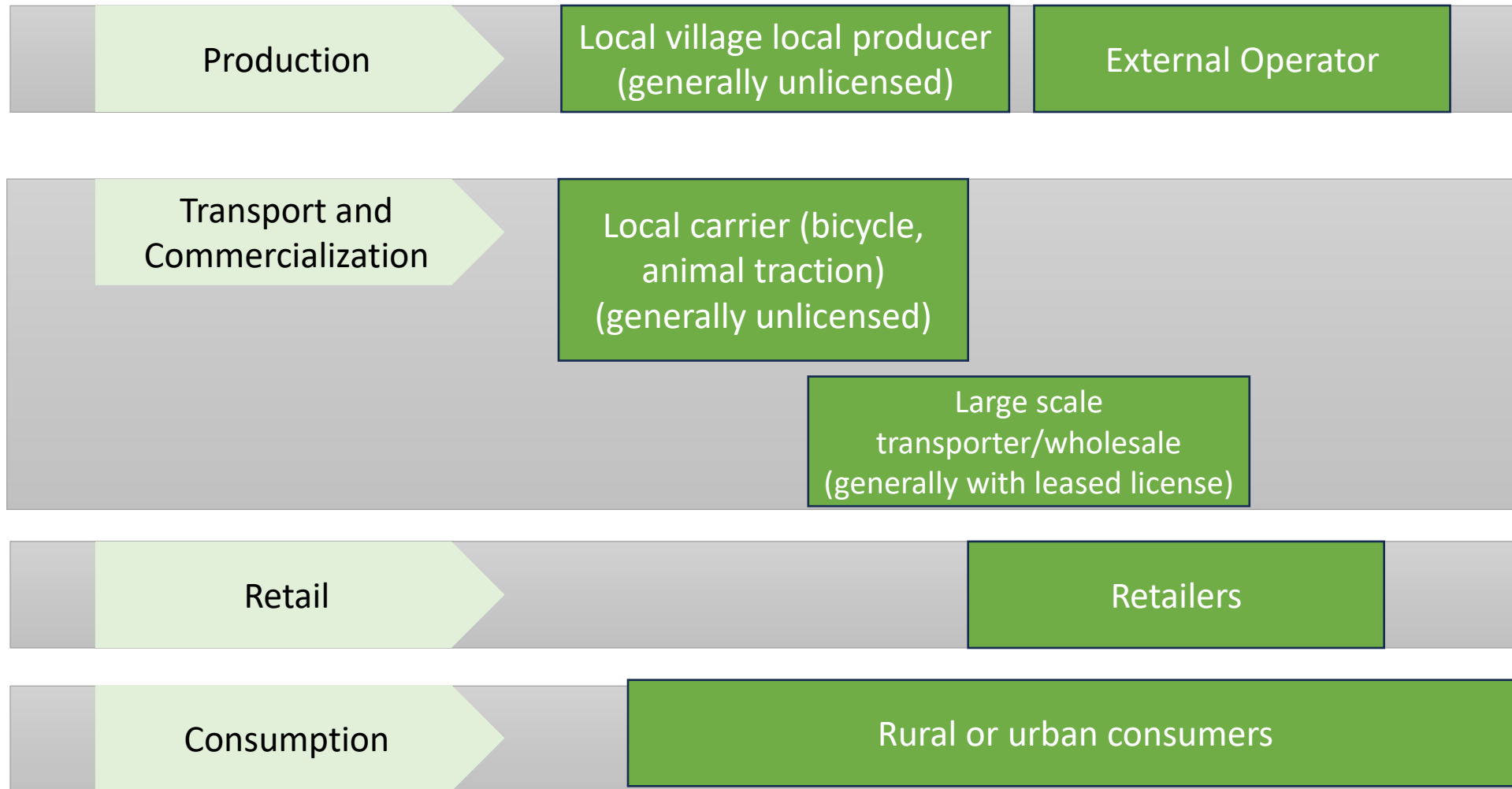
In the province of Gaza, 350 associations of charcoal makers and individuals are licensed and a daily 56 thousand bags of charcoal are produced to feed the cities of Maputo

Concerned about the situation, given Mozambique's high potential renewable energy (575MW renewable energy total power by 2023, with emphasis on solar energy potential -23000GW), the government has introduced measures to reduce and control deforestation and improve social conditions in communities (it is gradually introducing off-grid solar hone systems and min-grids for acess to electricity in dispersed communities through FUNAE and cooperation partners Get Invest, European Union, Spain Cooperation), including the introduction of improved cook stoves (ICS) in transition to advanced or high tier cook stoves (ACS).also known as clean energy, which are powered by LPG,gas, Ethanol, electric stoves and solar stoves.

Cont. Coal value chains in Mabalane



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- **Scientific Methodology Adopted in the Study**

Case study fits into the large group of explanatory studies that study individuals, groups, communities, etc., in a diachronic and synchronic detailed way, searching for cause and effect relationships, the results of which cannot be extrapolated beyond the local (Alves-Mazzotti, 2006).

- Qualitative research

- Snowball technical probability sample

- As information collection techniques: Life stories, semi-structured interviews and Focus Group Discussion



As a data analysis technique: Content analysis

Population sample from Mabalane district: implementer of the Pro-Eneria FUNAE plan (Coal producers, fire producers, families from Mabalane District)

Analysis technique: content analysis: The research takes care to objectively and systematically categorize homogeneous information with exhaustive classification, always taking into account the aspect of exclusivity (to avoid repetition of the same content element in several categories) and finally, objectivity. Through similar results, the research makes inferences about understanding how communities affected by floods, droughts and cyclones understand the use of environmentally friendly stoves as an aspect of improving the environment and climate change.

Information on semi-structured interviews with key informants and on life stories will be systematized through categorization of homogeneous information.

- Results or Expected Results of the study

solar stoves are still underdeveloped, and that the existing ones are not yet in the hands of the communities, as Gilda (2023), the owner of Energy Stores, a company that, in conjunction with rural women in Gaza Province and with funding from government cooperation partners, produces improved stoves using iron and ceramics, designed to **save firewood in** order to reduce the amount of firewood used to cook food, says - *the challenge is to learn how useful the cooker is*. In urban and peri-urban areas *the demand is high, but in rural areas there are still people who find it strange and prefer to use the traditional stove*.

The FUNAE 2023 interviewees consider that , *in general, the adoption of advanced stoves is for what is desired. In the cities there is greater demand, but the cost of charcoal is quite high for family incomes (1700,00Mt for a 50 kg bag), while people complain about the design of the stoves and suggest diversifying models . in rural areas low family income is one of the barrier to uptake*.

FUNAE and MIRENE have begun the process of massifying the distribution of cooking gas by cable, creating gas filling infrastructures in provinces of Nampula , Zambézia and will extend this to Maputo, Gaza and Inhambane.

- Discussion of the Results
- Raymond Boudon's theory (1981) highlights the notion of rational choices as being fundamental in the adoption or non adoption of environmentally friendly stoves and allow us to understand that individuals assess the risk and benefits according to their decision-making field.
- The reduction in deforestation through the use of clean energy stoves must be in the light of the decision made by individuals to continue, leave or find alternative forms of income generation , depending on their reflexive capacity.
- Implication of Such Results or Expected Results

- **Conclusions:**
- we consider that on the one hand rural communities are not aware of the usefulness of clean energy stoves, and on the other hand even if they are aware of them, they do not offer the condition that rural communities want, in terms of cooking time, technology and operating costs. From an aesthetic point of view, peri-urban and urban areas the stoves are unattractive, and the cost of charcoal is high. In general, there is an urgent need to produce stoves that meet the needs and conditions of communities, given their relevance in reducing the impact of climate change and social living conditions

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