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ANNUAL MEETING

APRIL 9-10. 2025 I MAPUTO. MOZAMBIQUE

SESSION : Using appropriate methodologies and metrics to assess vulnerability & health system resilience and support equitable public health policies

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Experiences of Mozambique in addressing appropriate metrics to assess the Vulnerability And Adaptation for the Health sector to Climate

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Outline:

- Introduction
- Context
- Experiences on V&A assessment
- Perspectives
- Conclusions

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INTRODUCTION

Mozambique is a country vulnerable to the adverse impacts of the Climate Change. It's geographical location accounts for this vulnerability.

Climate projections indicates that Mozambique will experience **increased temperatures**, **delayed start of the rainy season**, and **an increase in the frequency and intensity of extreme weather events**, which will place additional pressure and challenges on the health sector.

The ''Instituto Nacional de Saúde'' of Mozambique (INS) is showing its commitment to the Climate and Health issues from the past 8-9 years.

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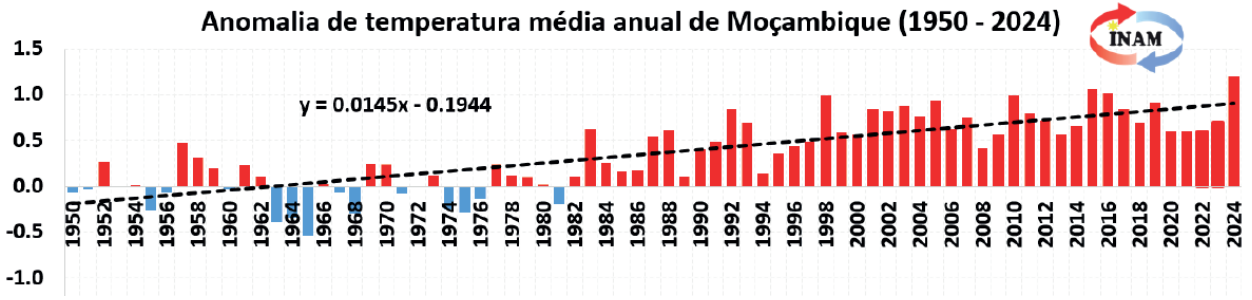
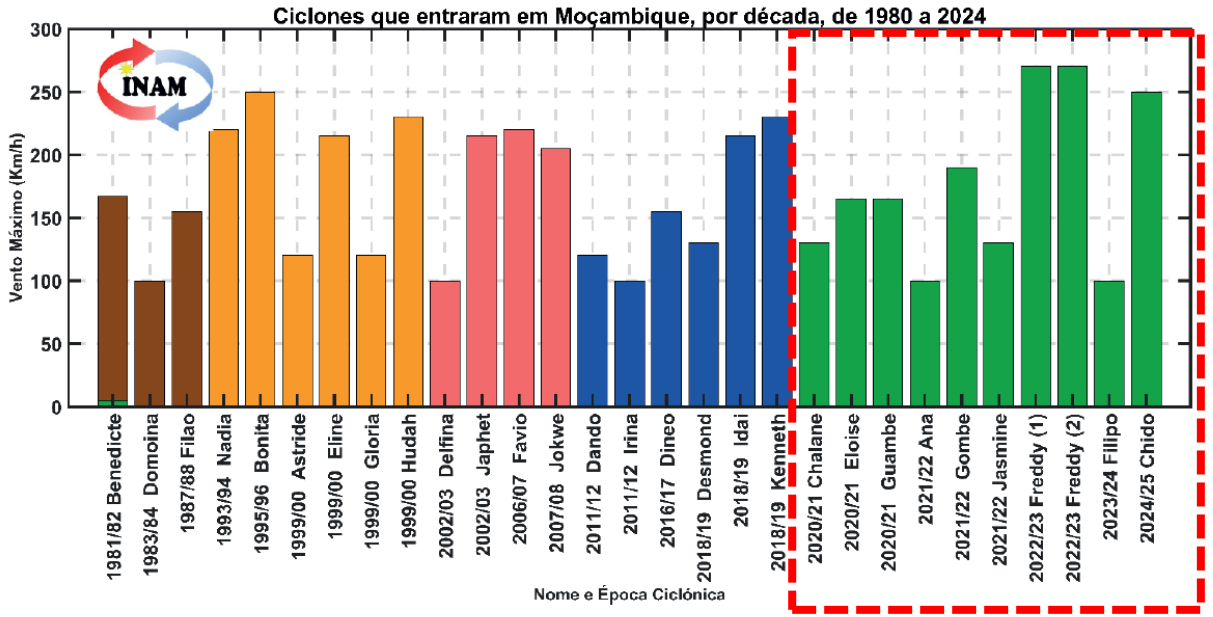
IMPACTS OF CLIMATE CHANGE

The variation in the country's average annual temperature has been on an upward trend since 1950, with an anomaly of 1.2°C above the climatological normal from 1981 to 2010. In time series (1950-2024), the year 2024 is considered the hottest

The number of extreme weather events is historically variable along the time in the country, dominated by **droughts**, **floods** and **tropical cyclones**. Trend of events recorded in the period 1980-2024, denotes a significant increase in the number of cyclones in the past decade.

These trends implies a growing pressure in the health system in the country.





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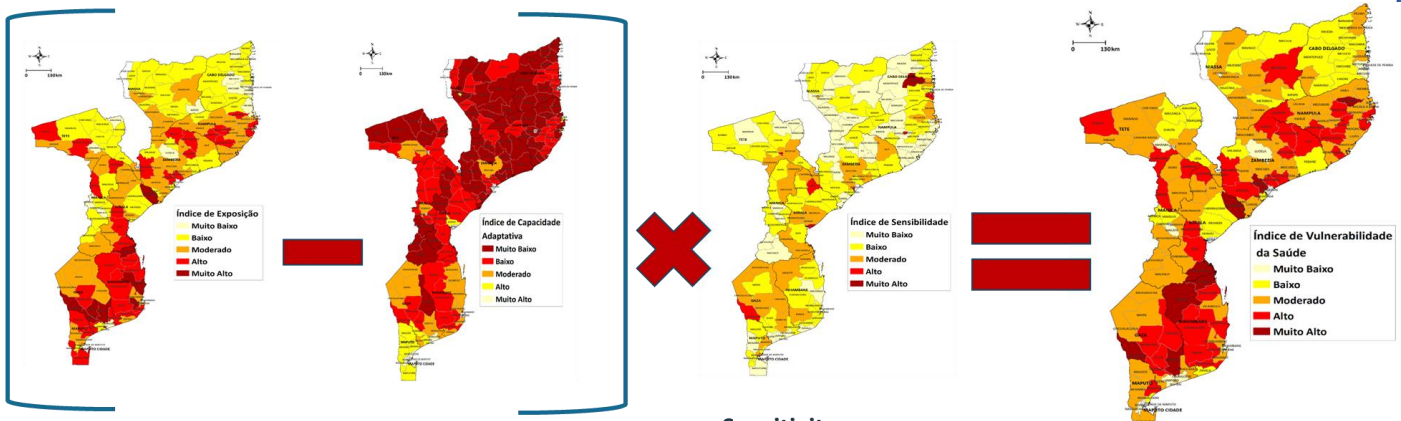
COUNTRY'S EXPERIENCES in V&A assessment (1/4)



Exposure:
variability of T, R, RH
Extreme events

Adapative capacity:
HR and budget for health
Acess to HS, WASH
Social determinants

Sensitivity:
Ecosystem and risks
Demography
Vulnerable Pop. and health

Health Vulnerability Index:
(E-AC)xS= HVI

(Exposure – Adaptative Capacity) x Sensitivity =

Health Vulnerability Index

In 2019, a **Vulnerability and Adaptation assessment** (V&A) of the health sector to the climate change was conducted.

- 42 districts (out of 161) showed a High to very high HVI (31.8% territory, 24.1% population).
- 8 districts with very high HVI.
- 15 of the 20 least vulnerable districts are urban (75%).

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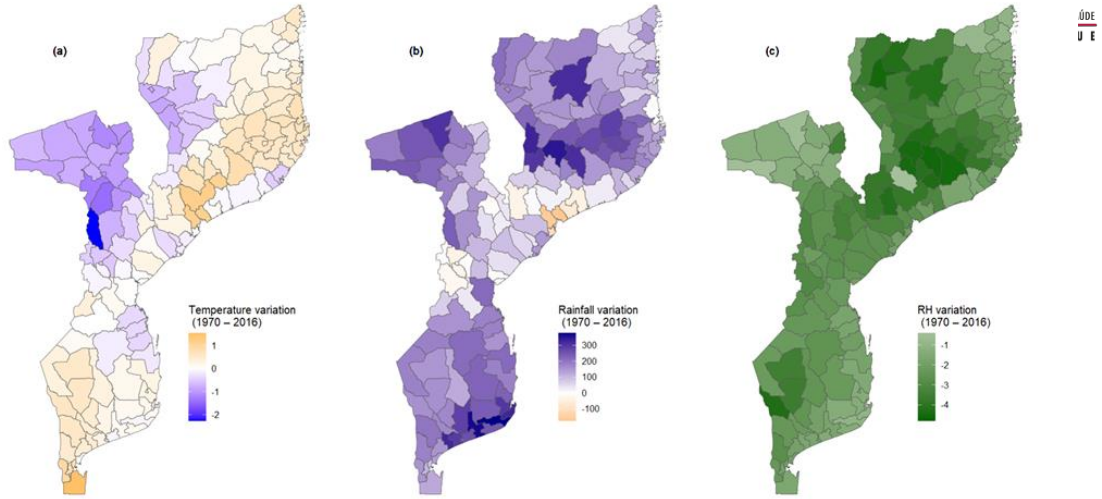
COUNTRY'S EXPERIENCES in V&A assessment (2/4)

EXPOSURE

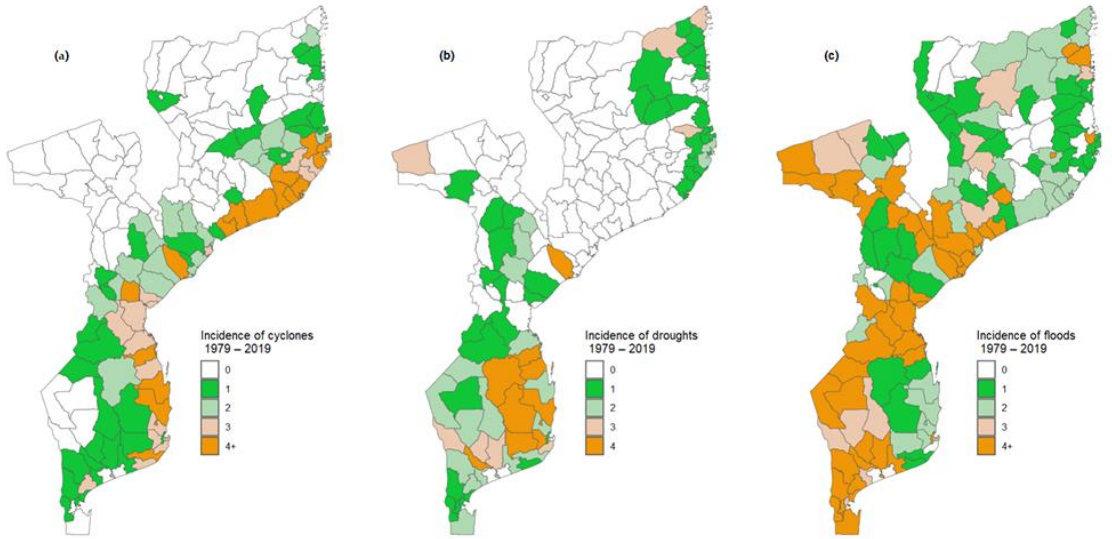
Around 12 episodes of **droughts** affected the country. Although in 2015-2016 severe droughts affected more than 1.500 M people.

About 20 events of **floods** affecting the main watersheds.

Around 21 events of **cyclones** affecting the country's coast. Only Cyclone Idai (a category 4 cyclone), nearly 1.85 million people were affected with an official death toll of 603.



Vulnerability Determinant	Components	Indicators	Data Source
Exposure	Changes on rainfall, temperature and RH	Average temperature variation (1970–2016) Average rainfall variation (1970–2016) Average variation in the RH (1970–2016)	NOAA MSWEP ECMWF
	Extreme events	Historical data on the frequency of floods, droughts and cyclones (1979–2019)	DesInventar data [27].



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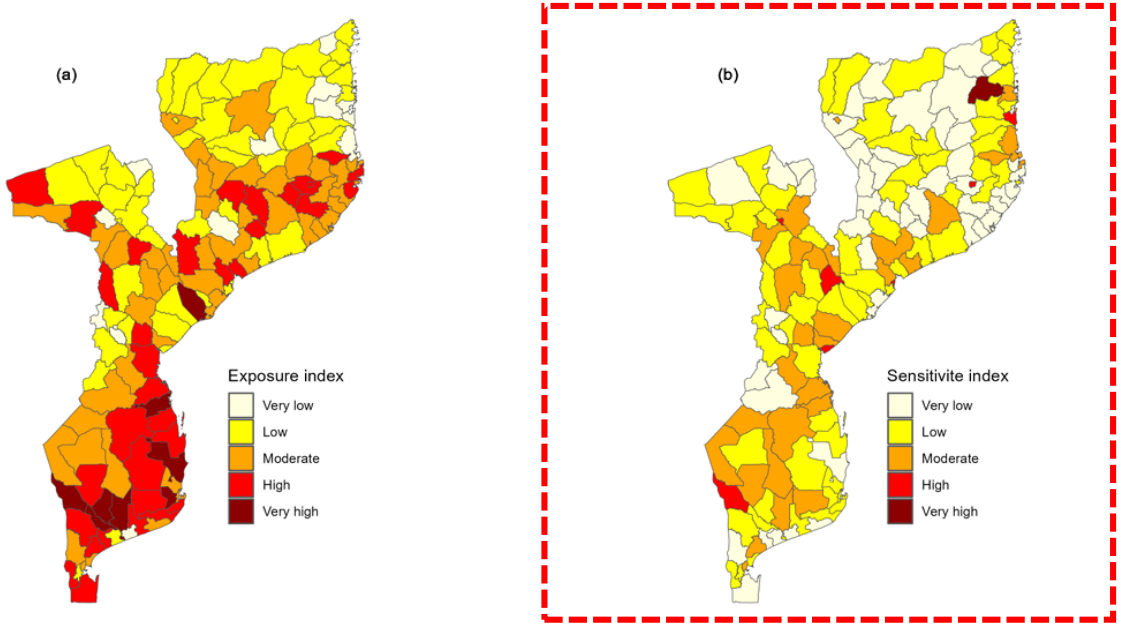

Sensitivity	Natural capital (Ecosystem/Geography—Risks)	Frequency of cholera outbreaks (2014–2019) Frequency of food insecurity episodes (2016–2019)	MISAU
	Natural capital (Demography and vulnerable population)	Population density (2017) Percent of children under five in the district (2017) Percent of children aged 5–15 years in the district (2017) Percent of women in the district (2017) Percent of elderly people (over 60 years old) in the district (2017)	Census data [33]
	Vulnerable population due to health conditions	HIV positivity rate (2017–2018) Rate of reported cases of tuberculosis (2017–2018) Average number of cases of acute and chronic malnutrition per 100,000 inhabitants (2017–2018) Average number of cases of malaria per 100 inhabitants (2017–2018) Average number of reported cases of diarrheal diseases per 100,000 inhabitants (2017–2018)	MISAU (National Directorate for Public Health)

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COUNTRY'S EXPERIENCES in V&A assessment (3/4)

SENSITIVITY

The degree to which the health sector is affected—either positively or negatively—by climate change-related stressors, such as extreme weather events, temperature changes, or altered precipitation patterns.

It is an intrinsic characteristic of the health system that determines **how susceptible it is to climate-induced disruptions** (socioeconomic and demographic factors, diseases burden and epidemiology, vulnerable populations exposed, health system infrastructure, etc).

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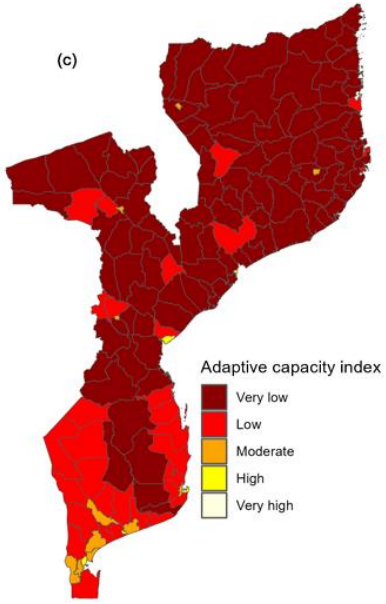
COUNTRY'S EXPERIENCES in V&A assessment (4/4)

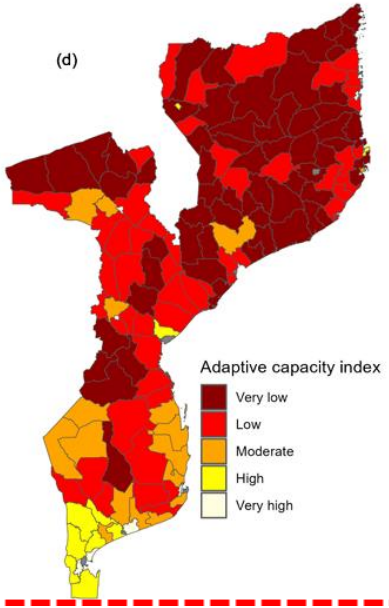
ADAPTATIVE CAPACITY

The ability of the health sector to anticipate, respond to, cope with, recover from, and adjust to the impacts of climate change while maintaining or improving healthcare services.

It determines how well the **health system can minimize risks, reduce damages, and enhance resilience** in the face of climate-induced stressors (financial resources, health workforce capacity, health services resilience, and environment and social determinants of health)

Adaptive capacity	Financial resources	Per capita public sector health expenditure (2018)	MISAU (division of administration and finance)
	Health services	Ratio of the total number of inhabitants to the total number of health units in the district (2018) Percentage of population living within the coverage radius of a health facility (2018)	Census data [33] and SARA report [34]
	Human resources	Ratio of medical workers per 100,000 inhabitants Ratio of nursing workers per 100,000 inhabitants Ratio of workers in the midwifery area per 100,000 inhabitants (2018)	MISAU (division of human resource)
		Number of inhabitants per health elementary multipurpose agents (2019)	MISAU (National Directorate for Public Health) and census data [33]
	Water and sanitation	Percentage of population with access to safe water sources (2017) Percentage of population with access to safe latrines (2017)	Census data [33]
	Social capital (Social determinants of health)	Percentage of literate population, men (2017) Percentage of population with primary education, men (2017) Percentage of population with secondary education, men (2017) Percentage of literate population, women (2017) Percentage of population with primary education, women (2017) Percentage of population with secondary education, women (2017)	Census data [33]
		Per capita expenditure (2014)	National household budget survey report [35]





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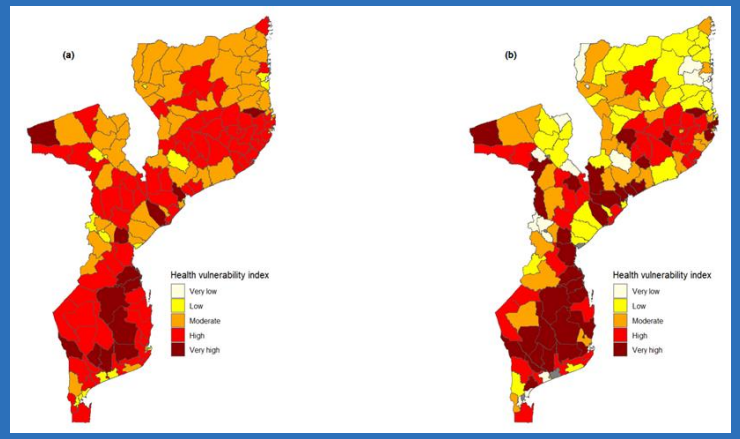
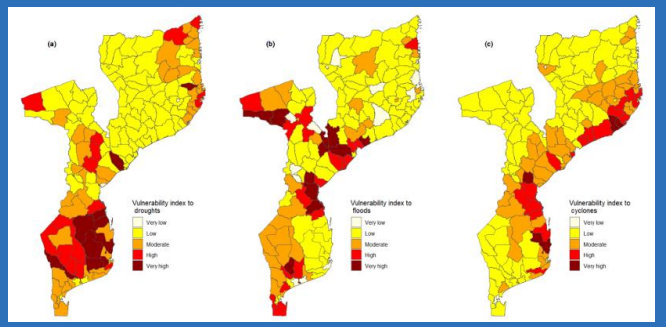
MAIN ACHIEVEMENTS

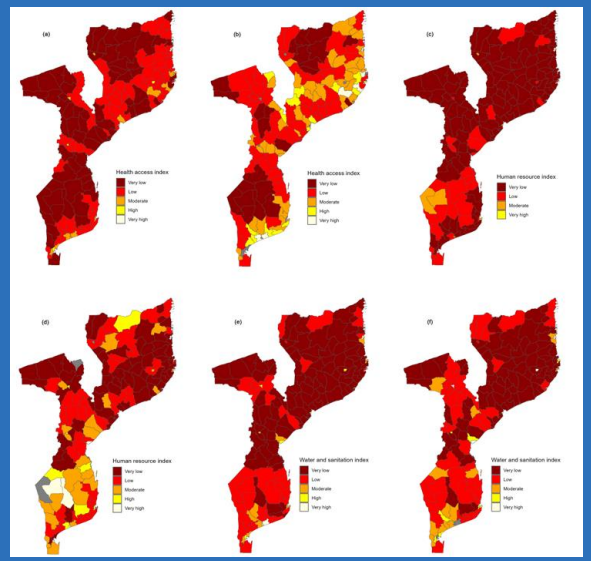
District-level Climate Change Vulnerability Index:

- Health Sector
- Specific Hazards (floods, droughts and cyclones)
- Social determinants of Health

Evidence-base to inform national sectoral plans and strategies







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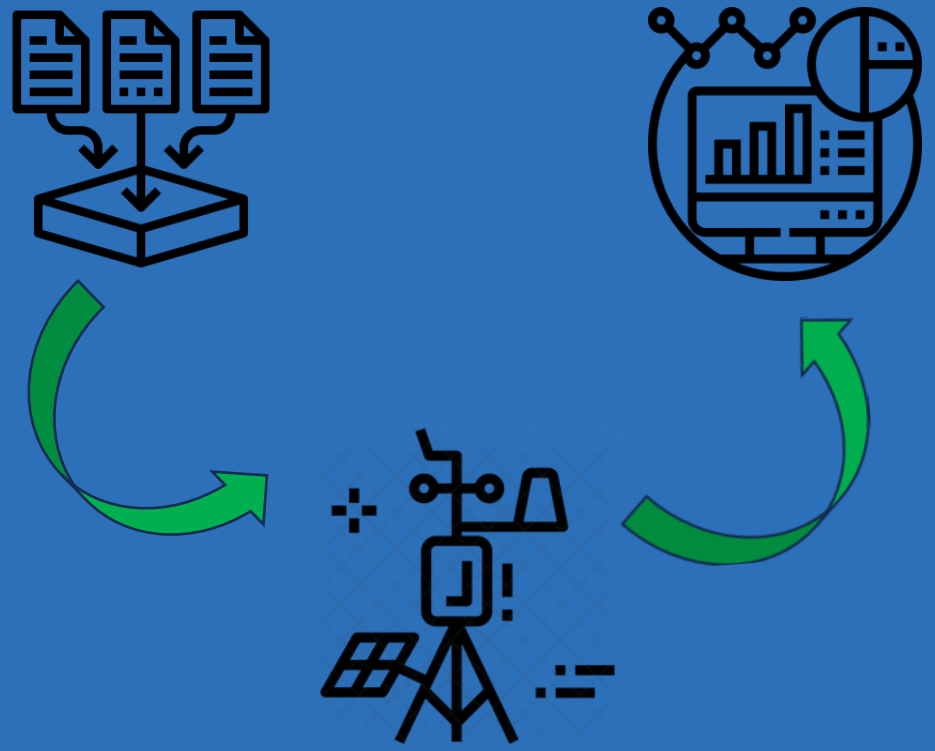

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LIMITATIONS

Data

Access, sharing and data quality

Weather stations

Low coverage (district level)
Gaps in historical data

Analysis

Proxy indicators
Reanalysis data

Over- or under-representation
Underestimation of indexes

PERSPECTIVES

1. **Assess PERIODICALLY vulnerabilities in health care facilities and communities**, so that facilities could be able to anticipate, respond to, cope with, recover from and adapt to climate-related shocks and stress, and even bring ongoing and sustained health care to their target populations, despite an unstable climate.

2. **Contribute to the awareness and education**, through lectures and trainings to doctors, health practitioners and other relevant health care professionals so that they take inequality in risk exposure to account when making decisions.

3. **Support the health sector on the implementation of National Plans for adaptation and mitigation**, such as NDC and H-NAP **(ONGOING)**

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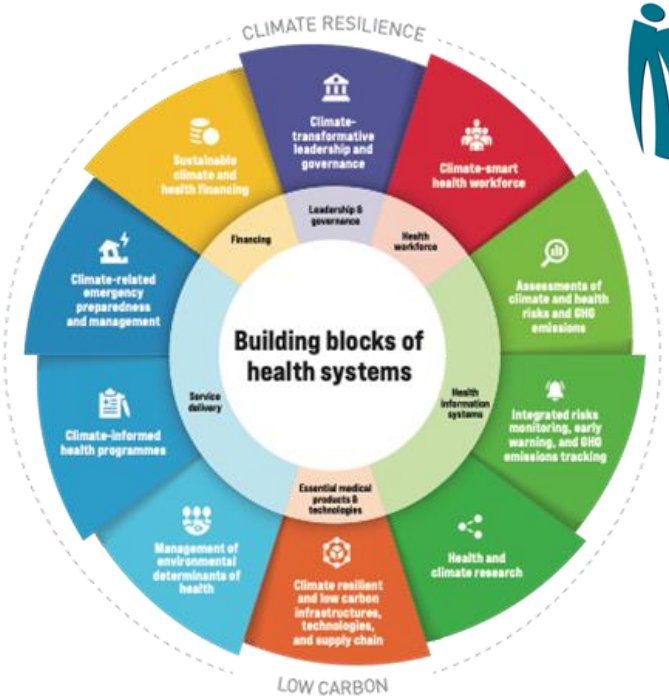
CONCLUSIONS



INS-Mozambique is contributing for **RESILIENT HEALTH SYSTEMS TO CLIMATE CHANGE AND LOW CARBON**, in the country through:

1. **Monitor and Evaluation**, although more capacity should be acquired to measure appropriate metrics to delivery timely and relevant information to the decision-making process.

2. **Reinforcing the multisectoral collaboration**, in supporting the sector on providing the required information to the development of strategic and national plans as well as incorporating appropriate metrics in the process of planning.

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THANK YOU FOR YOUR ATTENTION

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