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**Resilient
Cities 2018**

ECOSYSTEM RECOVERY AND RESILIENT HOUSING CONSTRUCTION

SESSION C1

**BUILDING RESILIENCE IN THE FACE OF LIMITED RESOURCES:
THE CASE OF MOZAMBICAN COASTAL CITIES**

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Presentation outline

- ❑ **Climate and development challenges**

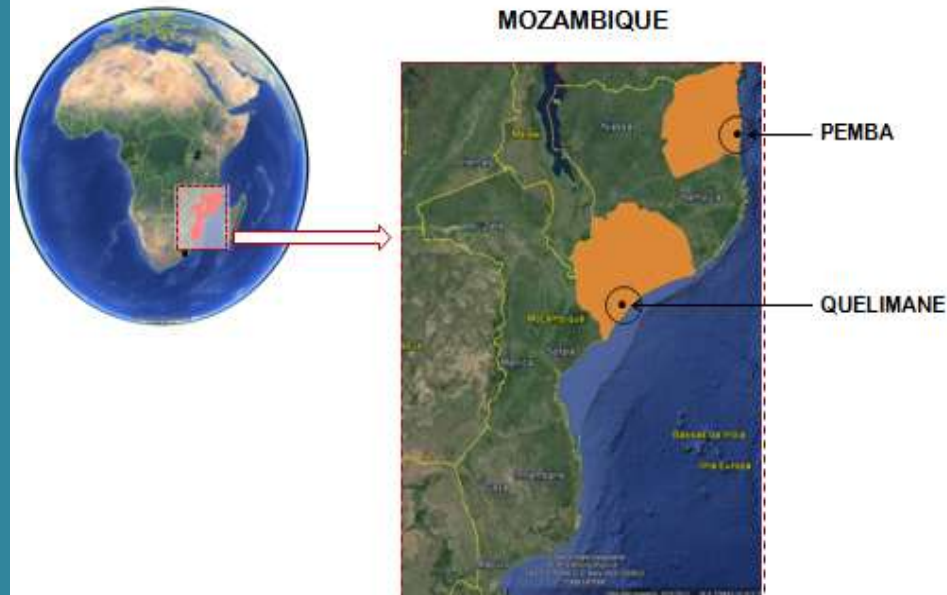
- ❑ **Quelimane Climate Change Adaptation Initiatives, focusing on:**
 - ❑ **Ecosystem based adaptation**
 - ❑ **Smart and resilient housing design**

- ❑ **Success / Opportunity**

CLIMATE AND DEVELOPMENT CHALLENGES

1. Below sea level – easily flooded from rain water, marine flood or tide
2. Urban sanitation and solid waste management
3. Zoning schemes, land use & water supply management
4. High population density
5. Infrastructures design and management
6. Low resilience level

LOCATION AND BRIEF BACKGROUND





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Investment in city adaptation and resilience:

1

ECOSSYSTEM BASED ADAPTATION

2

SMART AND RESILIENT HOUSING

1. ECOSYSTEM BASED ADAPTATION – Mangrove restoration

(1) Process and results

- ❑ Community active participation and leading the restoration process
- ❑ Restored 22 hectares (ha) – artificial regeneration;
- ❑ Restored 39 hectares (ha) – hydrologic restoration to prompt natural regeneration, Icidua A, B, C and Mirazane



1. ECOSYSTEM BASED ADAPTATION – Mangrove restoration

(2) Social dimension

- Promoted Mangrove restoration methodologies adopted by community members- e.g. nursery site location; tidal flow; hydrologic restoration
- Communities organized in associations and leading the mangrove protection and conservation
- Raised awareness of mangrove ecosystem services





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LESSONS LEARNING & WAY FORWARD

POSITIVE ASPECTS

- Use local language to facilitate communication with local community members;
- Political buy in, community members and leaders involvement in all stages of the restoration process is crucial;
- Involvement of relevant age groups including gender balance
- Involve research institutions to lead the mangrove monitoring;



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LESSONS LEARNING & WAY FORWARD

ASPECTS TO BE IMPROVED

- Strengthen linkage between Environment sector, community member, local CBO and others;
- Government roles is fragile and needs improvement. NGOs/CBO more relevant role.
- Continue improving local technical capacity to lead the restoration and conservation work



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2. SMART AND RESILIENT HOUSING DESIGN (1/2)

**THE STARTING POINT: TYPICAL HOUSE DESIGN AND CONSTRUCTION
VULNERABLE TO CLIMATE RELATED EVENTS**



**GOALS: DESIGN AND CONSTRUCT SAFE, FUNCTIONAL,
AFFORDABLE RESILIENT HOUSES**

2. SMART AND RESILIENT HOUSING (2/2)

What is Climate Resilient Construction?

An infrastructure/housing that intentionally incorporates in its design elements that aid in withstanding disaster and disruption of normal life

Examples:

- Locating Construction
- Securing the Roof
- Capturing/ Storing
- Rainwater
- Raised Foundation
- Reinforced Walls





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SMART AND RESILIENT HOUSING DESIGN

Desenvolvendo uma Alternativa de Modelo de Infraestrutura Habitacional Resiliente aos Efeitos das Mudanças Climáticas



Tipologia 1 - Casa Tipo 3



Plano de Piso



Corte Perspectiva da Casa



Visões 3D da Casa



CREATING OPPORTUNITIES

- **GoM involvement - National Directorate of Urbanization and Housing/ Municipality**
 - Revising building codes
 - Promote the resilience construction techniques
 - Inputs into housing policy
- **Partners**
 - Dissemination of information
 - Expansion of Models
- **Private Sector**
 - Mobilization of funding for construction



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