

**POTENCIAL DAS ENERGIAS RENOVÁVEIS
EM MOÇAMBIQUE PARA ENFRENTAR
PROBLEMAS DE ENERGIA E
MUDANÇAS CLIMÁTICAS**

Por:

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e
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Outline

- Part 1: Background
- Part 2: Renewable energies in Mozambique
- Part 3: Outreach activities
- Part 4: Training activities
- Part 5: Future prospects

Part 1

Background

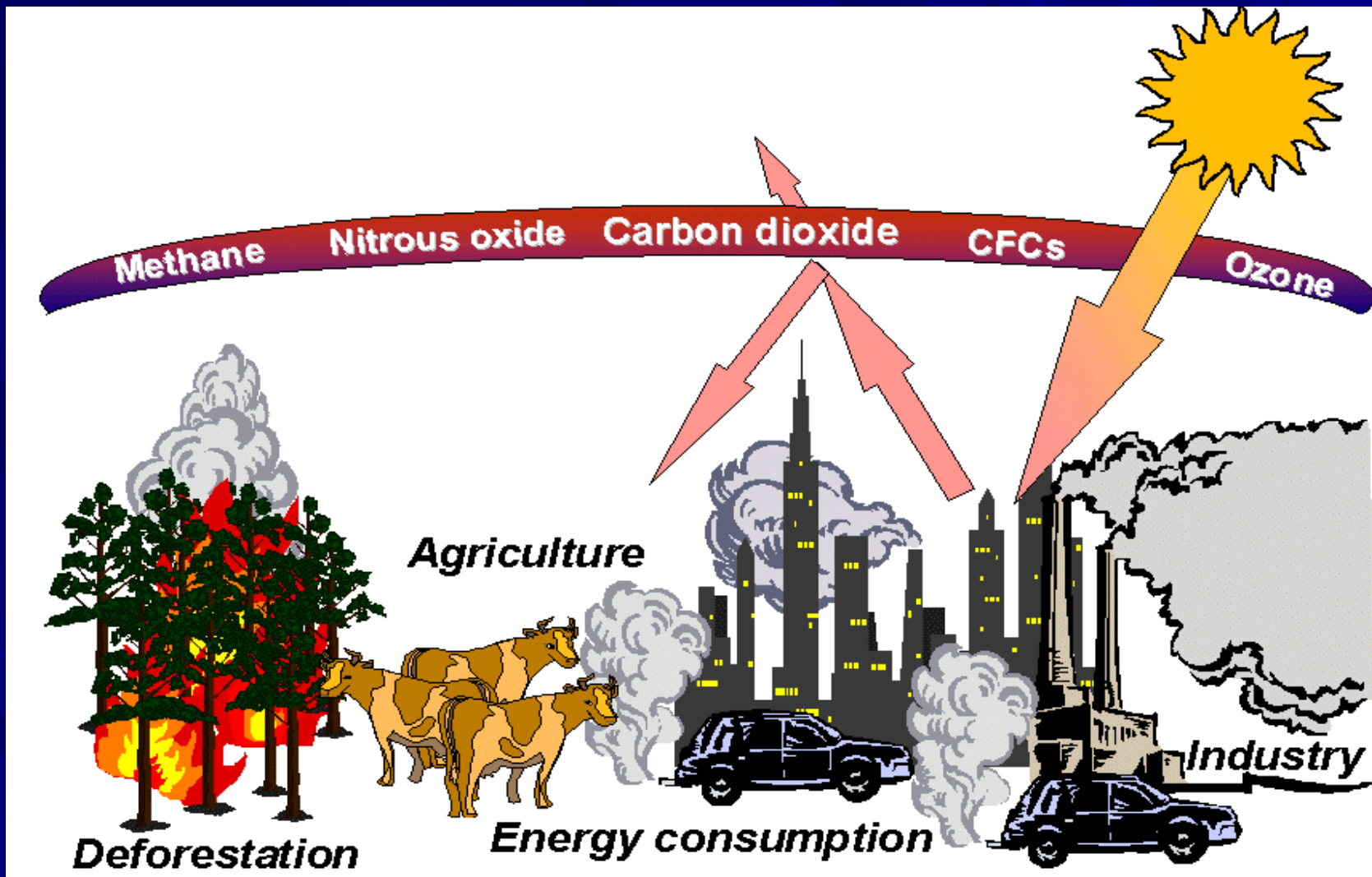
General Objective

- To increase the use of scientific and technical background to back up the promotion of renewable energies in the country, in order to contribute for the **sustainability of the national energy sector**, by expanding the supply of improved and modern energy services.

Physical Sustainability

•Resources	Time Span Until Depletion
Crude Oil	41 Years
Natural Gas	61 Years
Coal	204 Years

Environmental Sustainability - 1 greenhouse gases



Environmental Sustainability - 2

clean development mechanism

- According to the Kyoto Protocol developed countries should reduce their emissions;
- A flexibility mechanism enables developed countries to reduce emissions in developing countries and this is called the clean development mechanism;
- It is a way of mitigating climate change.

Environmental Sustainability - 3 adaptation to climate change - 1



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Environmental Sustainability – 4 adaptation to climate change - 2



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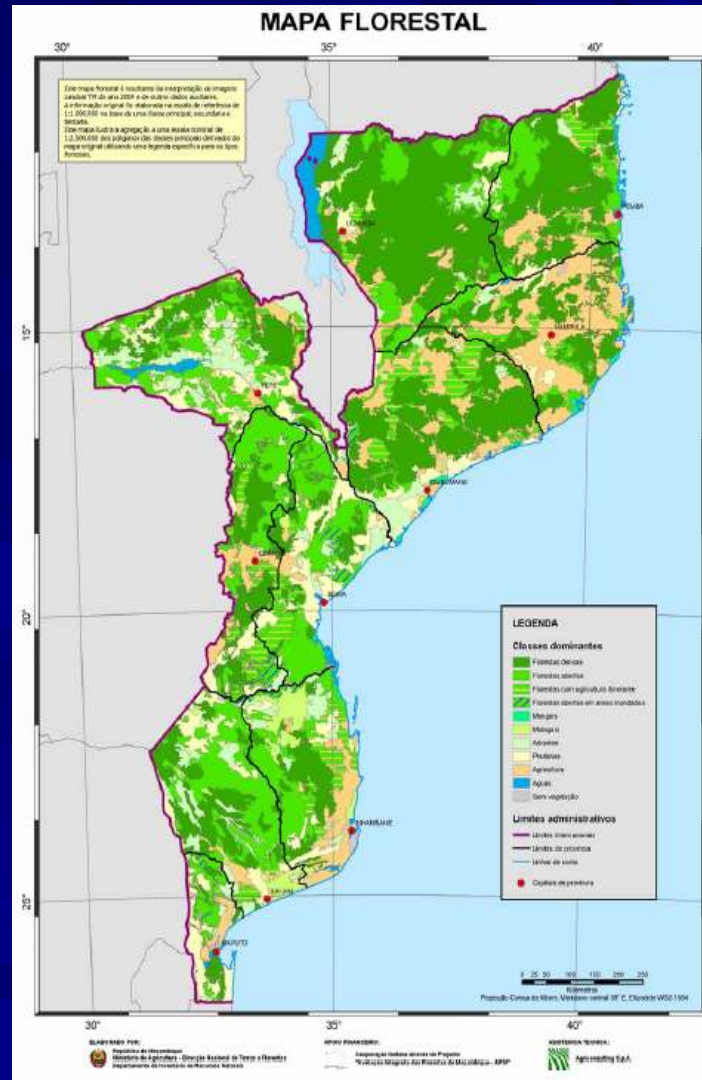
Social and Economic Sustainability

- The majority of the twenty million Mozambicans live in rural areas;
- Less than 10% of the Mozambican population has access to grid electricity;
- The extension of the country is of about 800.000 square kilometres.

Part 2

Renewable Energies in Mozambique

Biomass Energy - 1



Biomass Energy - 2

■ Wood stoves



Biomass Energy - 3

■ Household and Institutional Stoves



Biomass Energy - 4

■ Institutional Improved Stoves

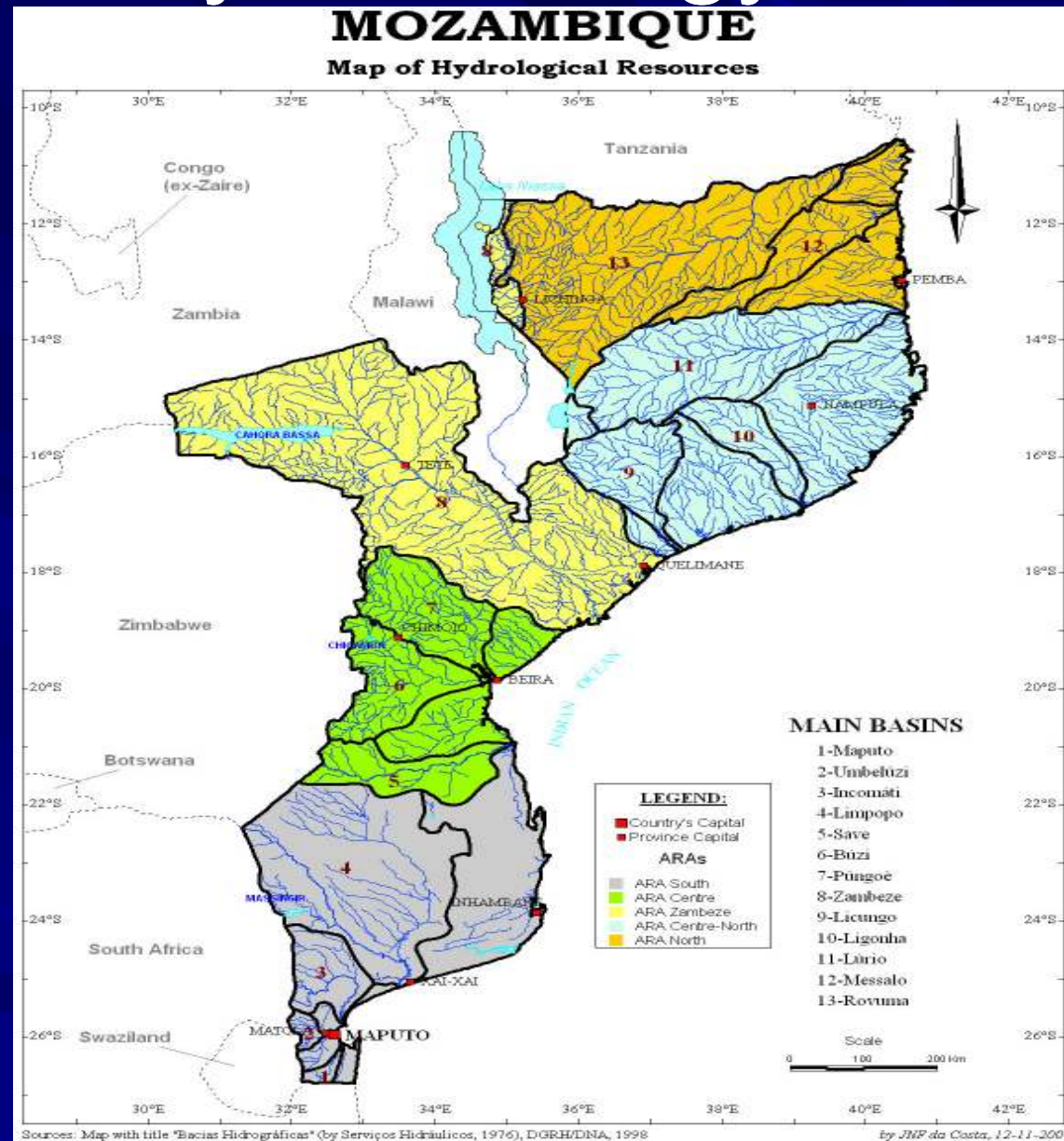


Biomass Energy - 5

- Low cost building material

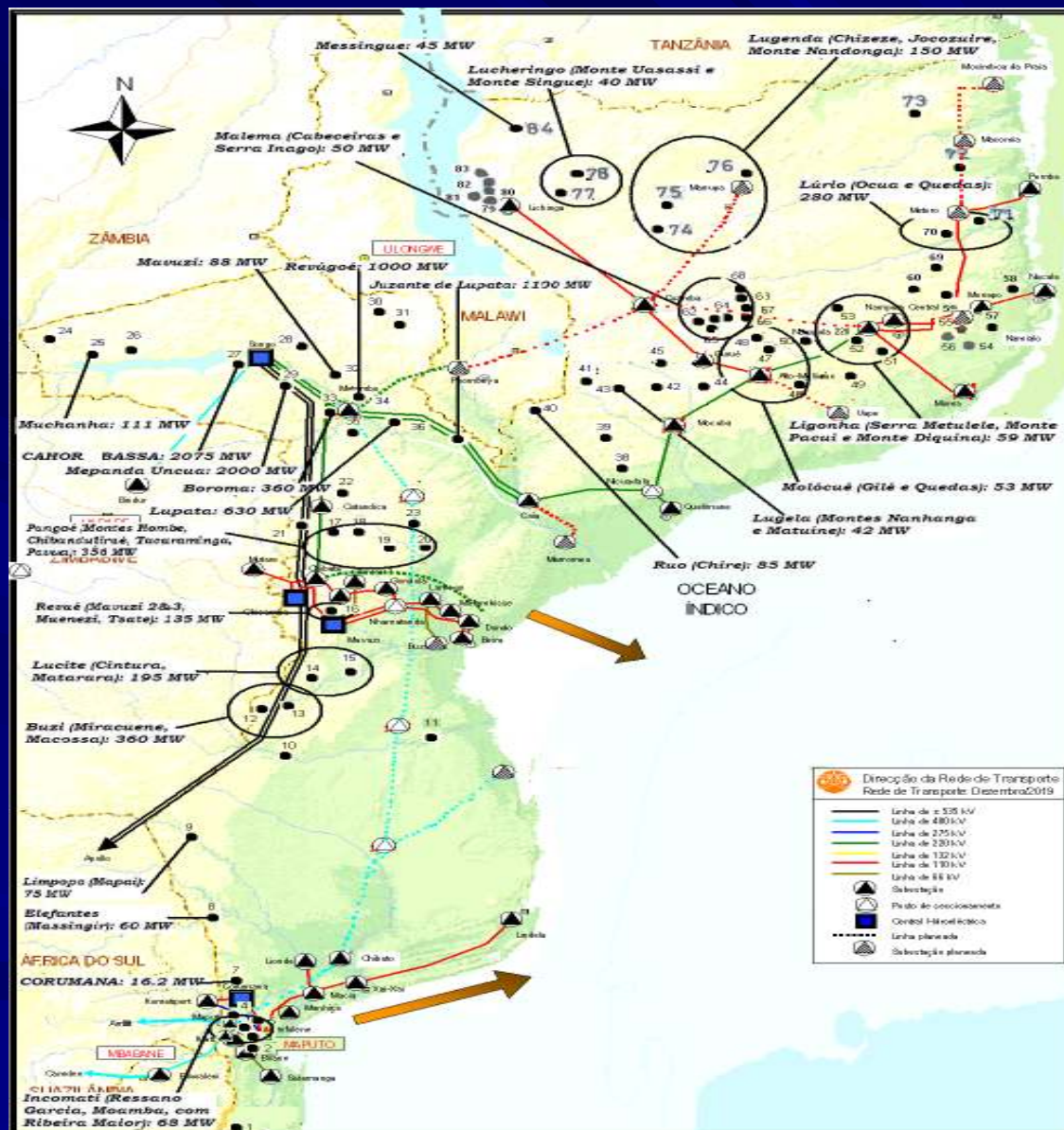


Hydro Energy - 1

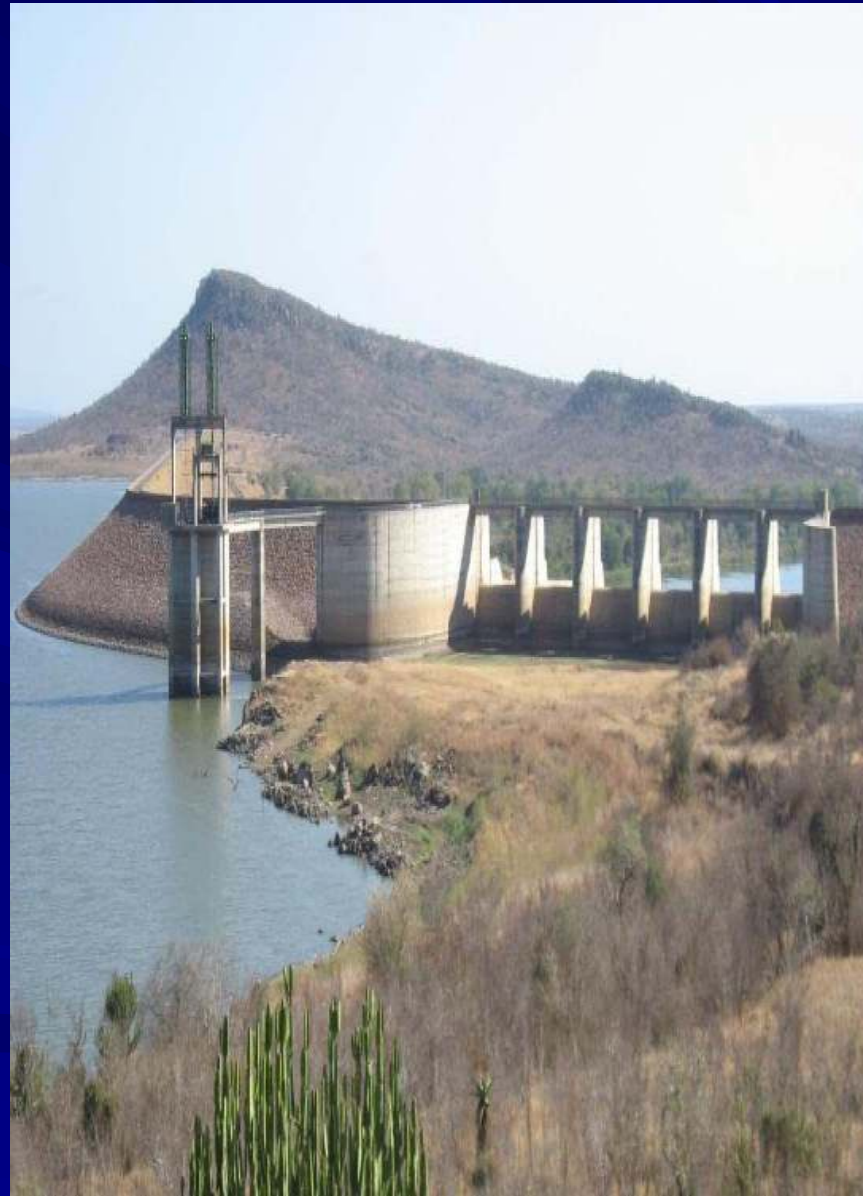


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Hydro Energy - 2

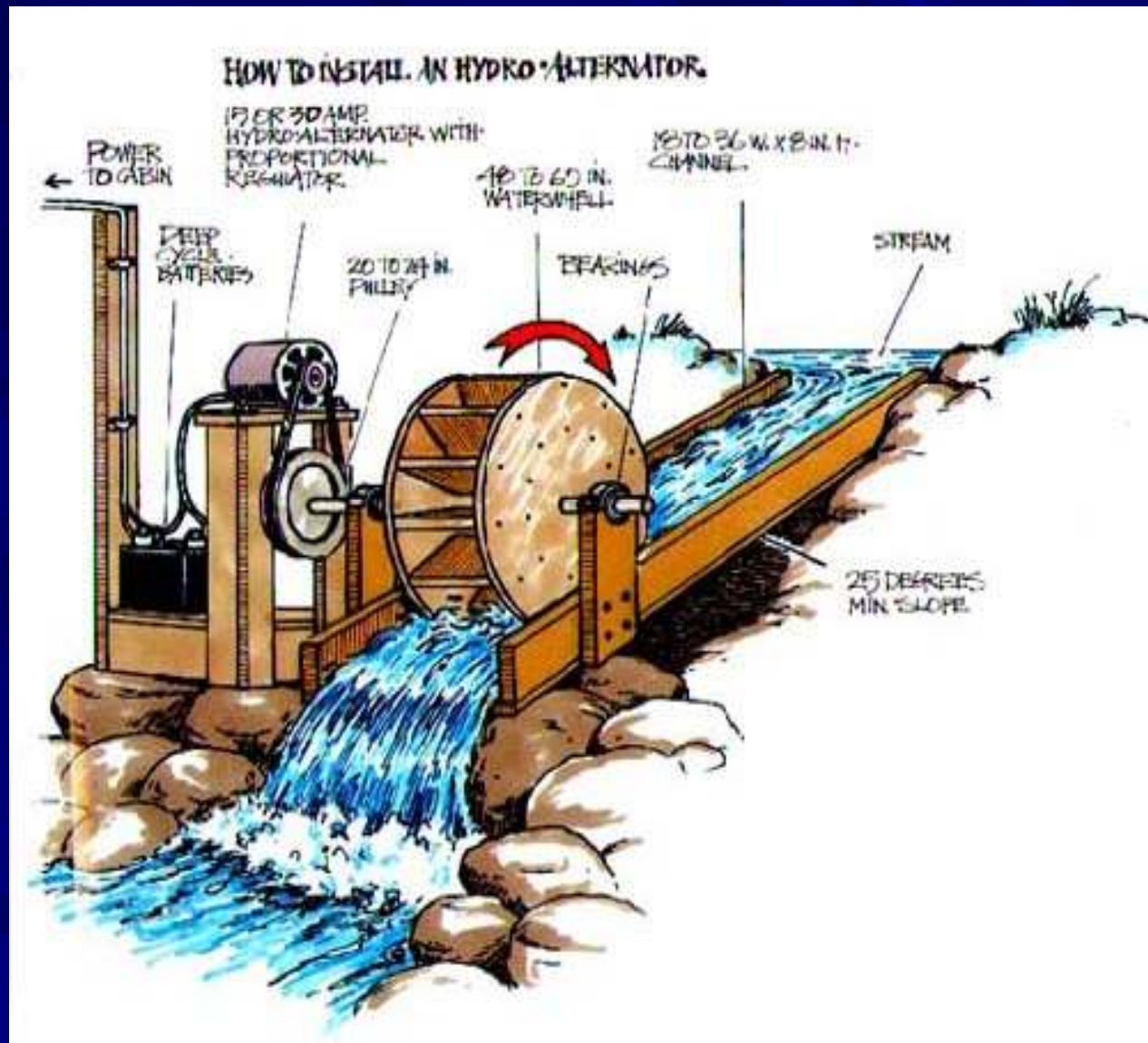


Hydro Energy - 3

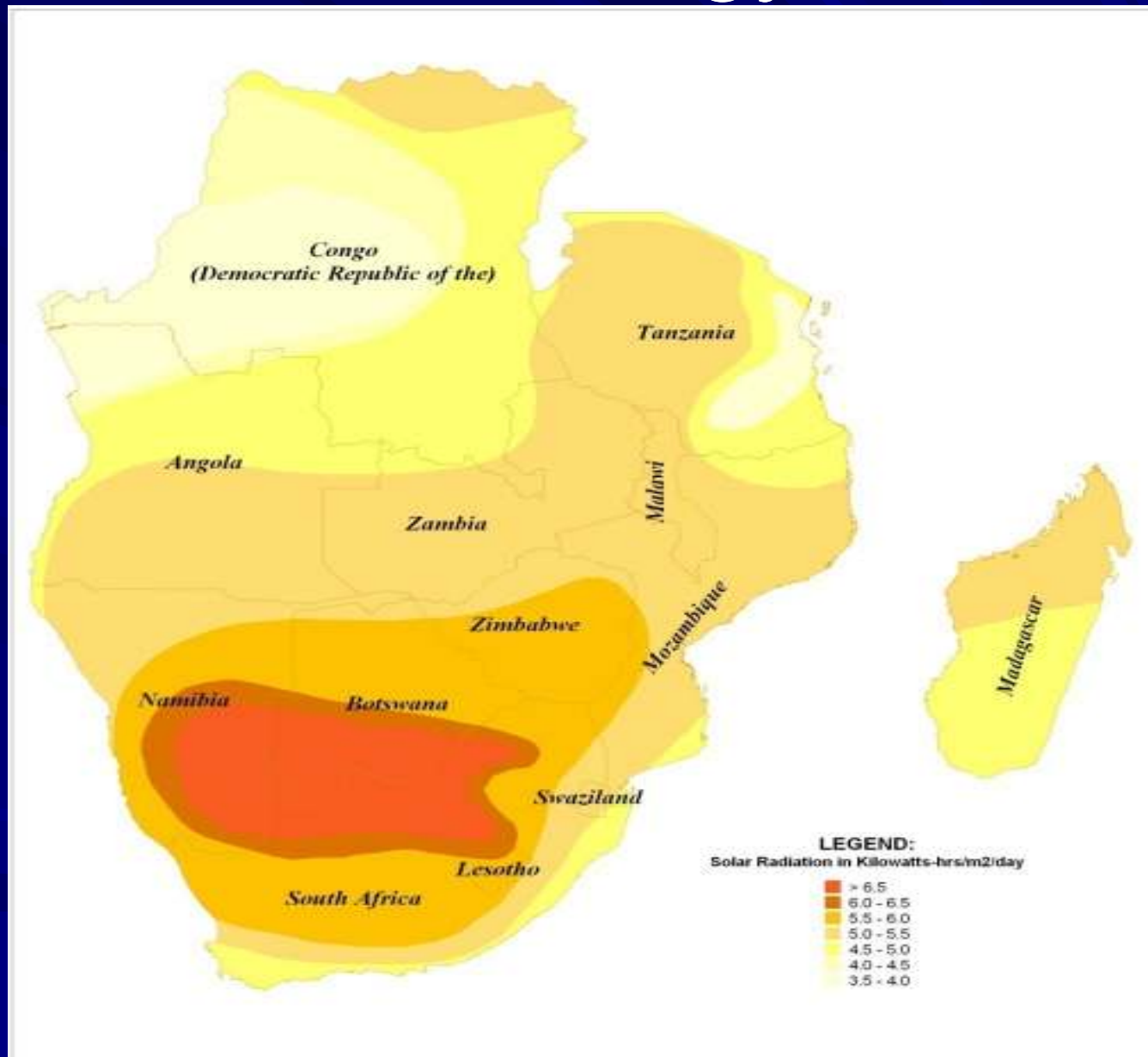


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Hydro Energy - 4



Solar Energy - 1



Solar Energy - 3



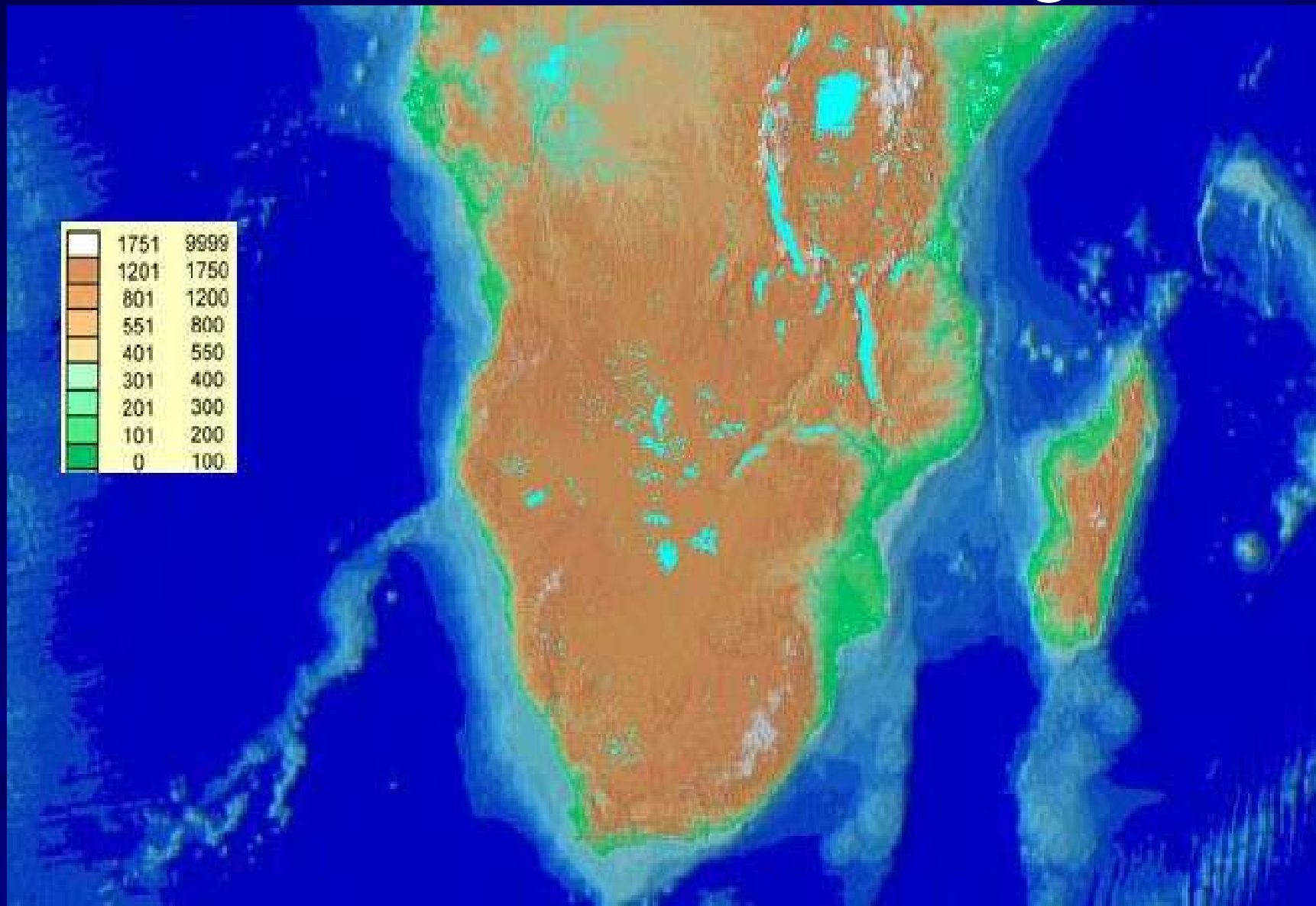
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Solar Energy - 4



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Wind and Ocean Energies



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Wind Energy – 2

UEM, INAM, PRIVATE

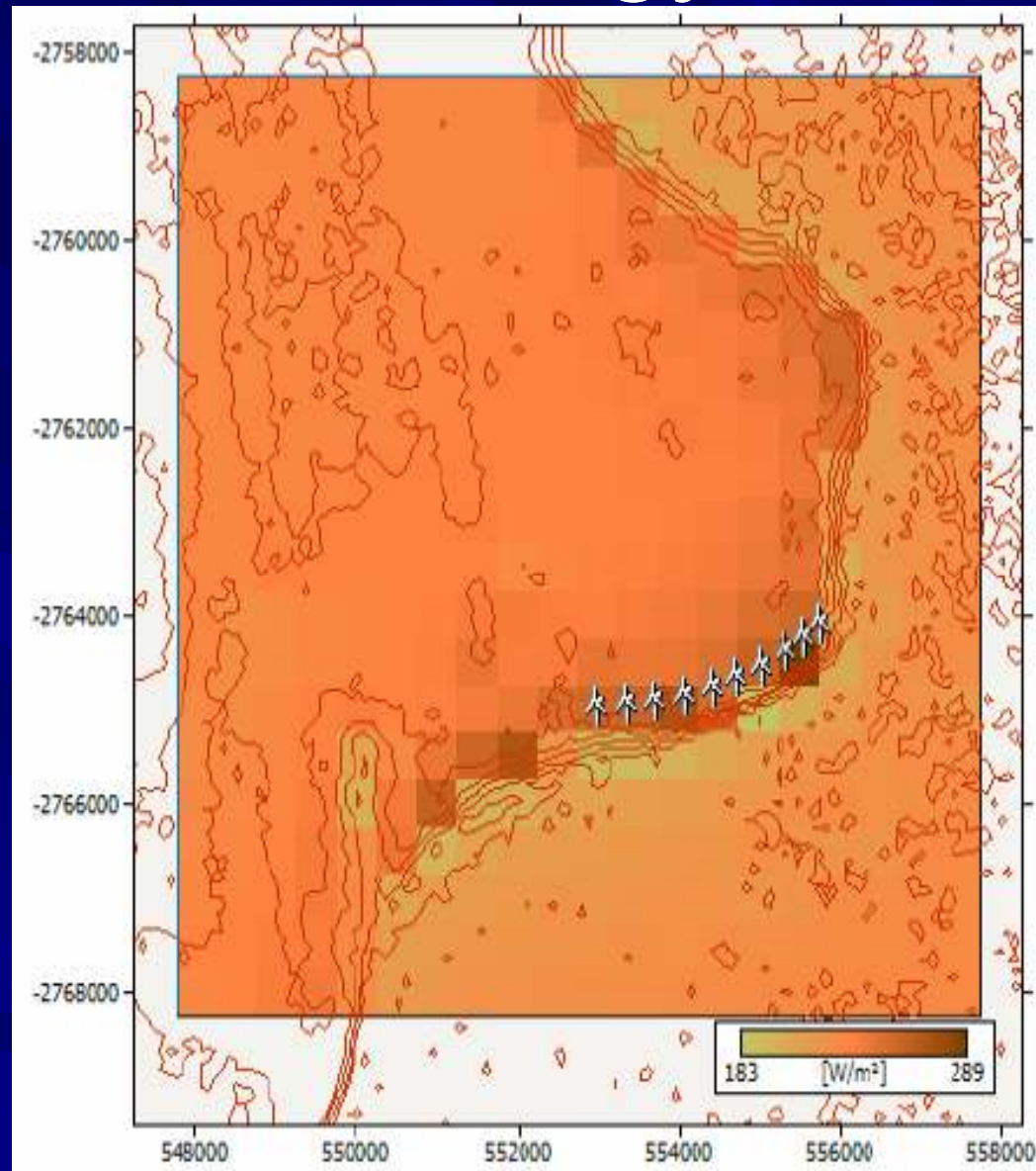


Wind Energy - 3

GAMESA G58-850 KW



Wind Energy - 4



Wind Energy - 5



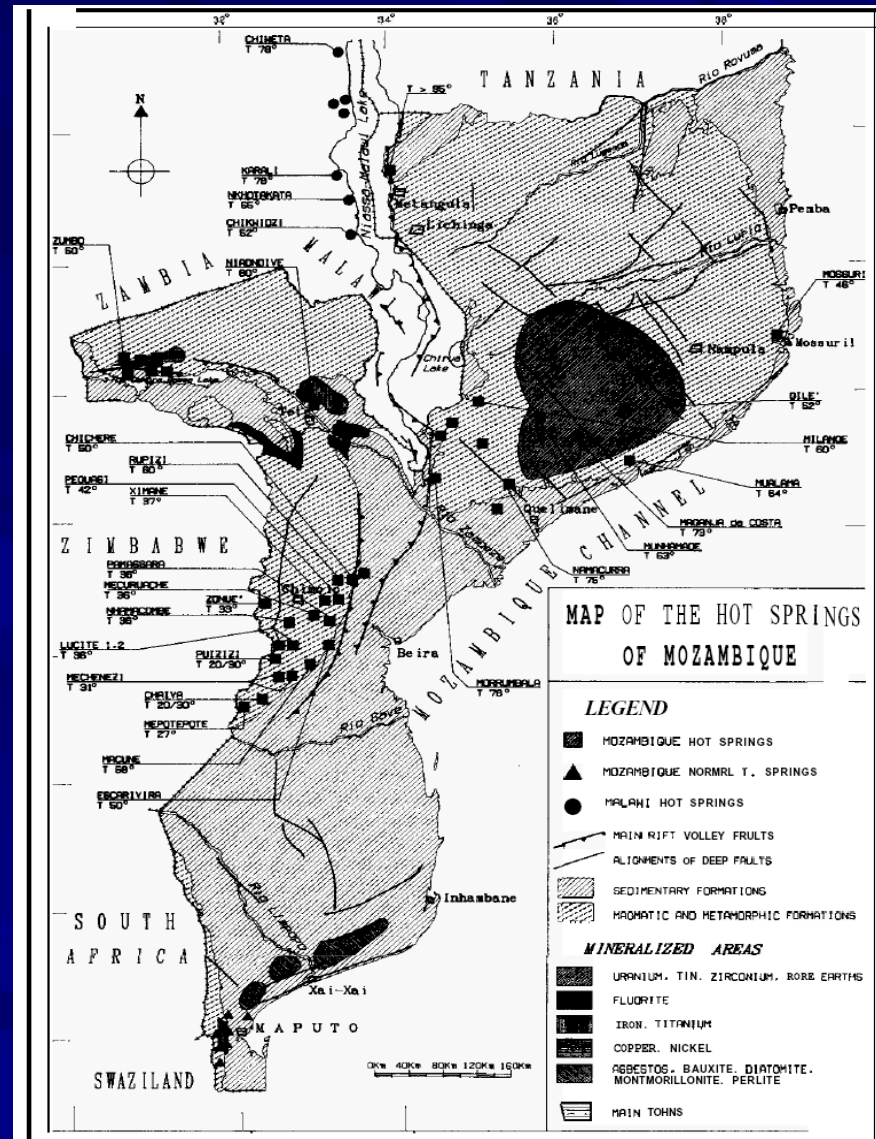
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Wind Energy - 6



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Geothermal Energy - 2



Geothermal Energy - 3

- In Sub Saharan Africa, Kenya is the country with most experience in geothermal energy, with installed geothermal power plants.

Part 3

Outreach Activities

Demonstration Projects – 1 UEM, NGO (during nineties)



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Demonstration projects - 2

UEM, NGO (2004-2006)



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Demonstration Projects - 3

MCT, UEM, DNA, NGO (2006-2008)



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Demonstration Projects – 4 MCT,DNA, UEM, NGO (2006-2008)



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Demonstration Projects - 5 MCT, DNA, UEM, NGO (2006-2008)



Energy, Environment and Climate Research Programme, 30 Years of Cooperation UEM/SIDA SAREC

Demonstration Projects - 6

MCT, DNA, UEM, NGO (2006-2008)



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Demonstration Projects - 7 MCT, DNA, MCT, DNA, UEM, NGO (2006-2008)



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Rural Electrification – 1

FUNAE, MISAU, UEM, PRIVATE (2006-2008)



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Rural Electrification - 2

FUNAE, MISAU, UEM, PRIVATE (2006-2008)



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Part 4

Training Activities

Formal Training - 1



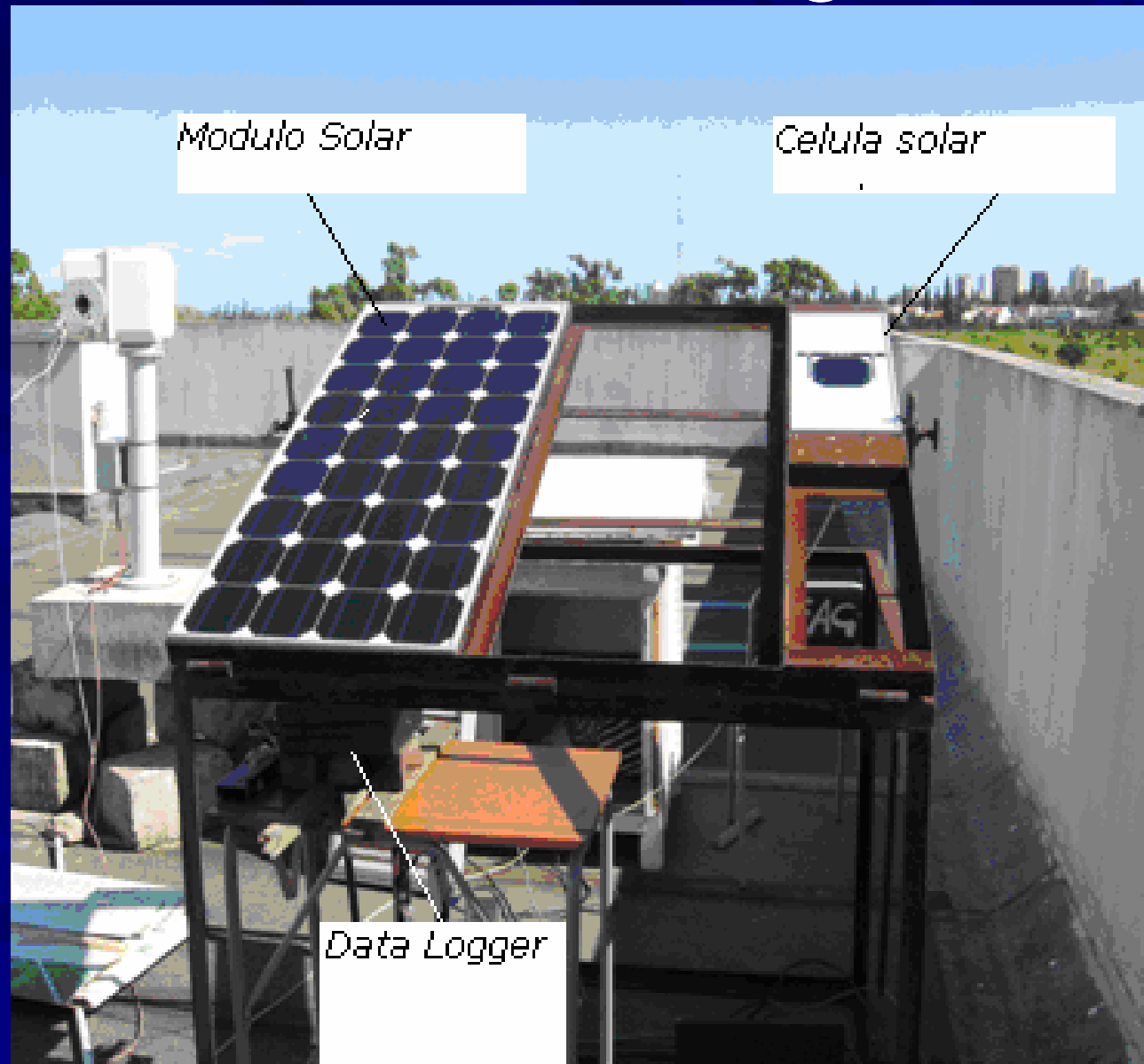
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Formal Training - 2



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Formal Training - 3



Formal Training - 4



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Short Courses - 1

SADC framework (2002 – 2008)



Short Courses - 1

SADC framework (2002 – 2008)



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Short Courses - 2

FUNAE, UEM, private (started 2007)



Energy, Environment and Climate Research Programme, 30 Years of Cooperation UEM/SIDA SAREC

Short Courses – 2

FUNAE, UEM, private (started 2007)



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Workshops in Schools – 1 (started 2005)



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Workshops in Schools – 2 (started 2005)



Energy, Environment and Climate Research Programme, 30 Years of Cooperation UEM/SIDA SAREC

Workshops in Schools – 3 (started 2005)



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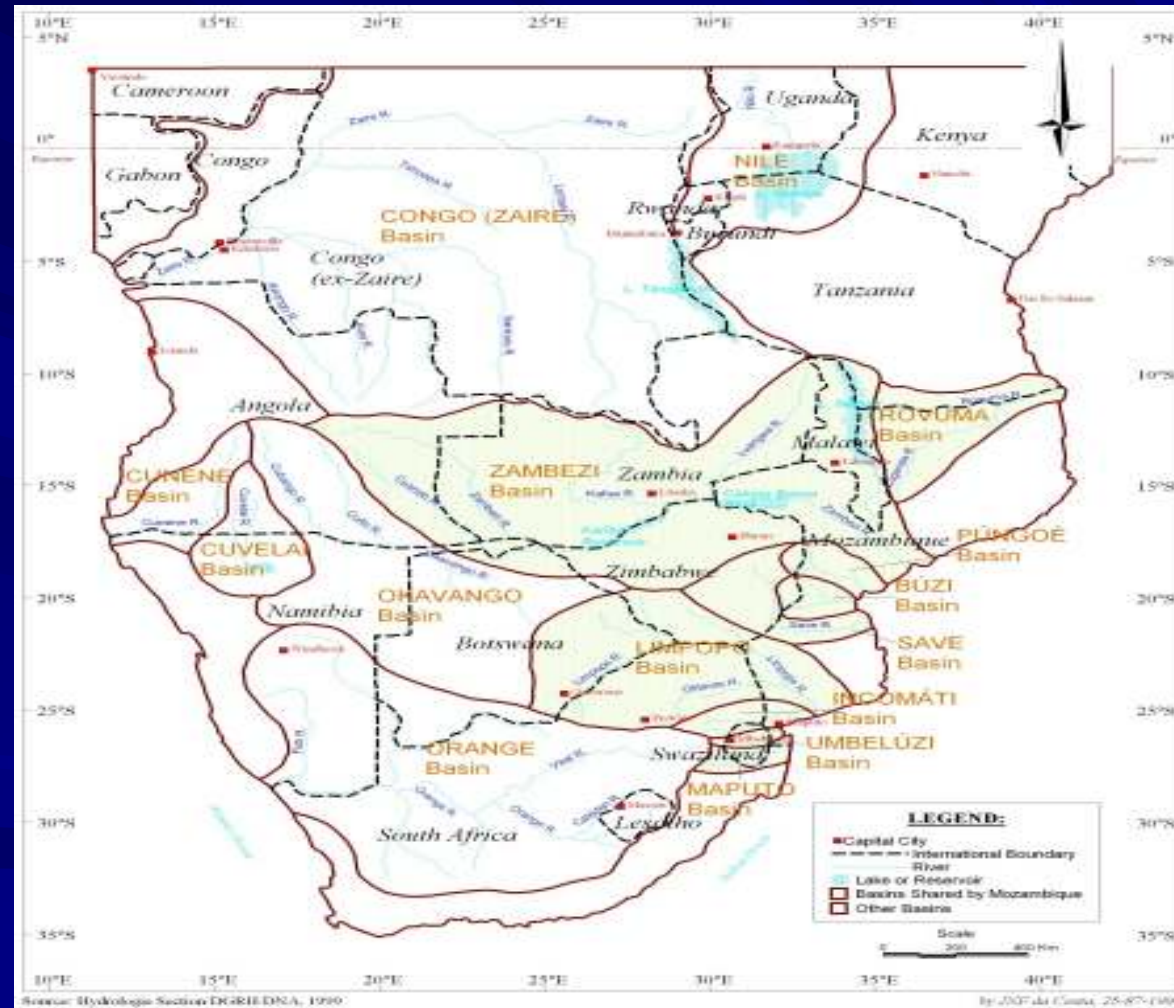
Part 5

Future Prospects

Integrated Approach to Renewable Energies - 1

- With participation of different stakeholders:
 - Mapping of resources;
 - Demonstration projects;
 - Technology development;
 - Micro off grid rural electrification and energisation;
 - Grid integration;
 - Energy modelling
 - Training.

Integrated Approach to Renewable Energies - 2



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Postgraduate Programmes - 1

- MSc and PhD;
- In different interrelated areas:
 - Energy science and technology;
 - Climatology;
 - Environmental pollution;
 - Hydrometeorology;
 - Climate change.

Postgraduate Programmes - 2

- Postgraduate programme in Energy Science and technology developed: now in process of analysis;
- Postgraduate programme in Sustainable development and disasters in development.

End

■ Thank you very much for your attention!