




Future Energy in International Environmental Cooperation

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Outline

- ▶ Background
 - ▶ INDC
 - ▶ Future Energy
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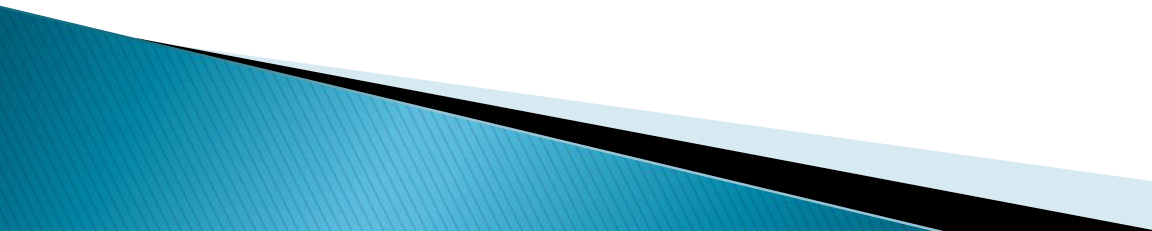
Background

- ▶ Decision informed by Climate Change.
 - Greatest challenge of our time.
- ▶ Botswana became Party to the UNFCCC on 27 April 1994
- ▶ Objective of the UNFCCC
 - Stabilize GHG concentrations in the atmosphere
 - Allow ecosystems to adapt naturally to climate change
 - Ensure food security.
 - Ensure sustainable development
- ▶ Botswana ratified the Kyoto Protocol in August 2003
- ▶ The KP required developed countries to reduce GHG emissions by at least 5% of the 1990 level between 2008 and 2012
- ▶ The Paris Agreement adopted in December, 2015 and Botswana ratified in November, 2016.

Expectations for Paris


- ▶ Final outcome should be Legally binding
 - ▶ Differentiation among Parties and CBDR.
 - ▶ Mitigation commitments to key global temperatures at 1.5 degrees celsius. INDCs not sufficient to keep emission below 1.5 degrees C
 - ▶ Promise of 100 billion dollars a year by 2020 by developed countries should be fulfilled.
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Paris Outcome


- ▶ Reaffirm the goal of limiting global temperature increase well below 2 degrees Celsius, while urging efforts to limit the increase to 1.5 degrees
 - ▶ Commit all countries to submit new NDCs every five years, with the clear expectation that they will “represent a progression” beyond previous ones
 - ▶ Reaffirm the binding obligations of developed countries under the UNFCCC to support the efforts of developing countries, while for the first time encouraging voluntary contributions by developing countries too
 - ▶ Extend the current goal of mobilizing \$100 billion a year in support by 2020 through 2025, with a new, higher goal to be set for the period after 2025
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INDC IMPLEMENTATION

Background information on INDCs

- ▶ INDCs are the pledges countries put forward to the Conference of the Parties to outline the steps a country plans to make to reduce greenhouse gas emissions
 - ▶ INDCs are intended to track progress and achieve a collective ambition level sufficient to limit global warming to below 2°C relative to pre-industrial levels
 - ▶ INDCs may also address adaptation plans, and the support needed from countries
 - ▶ The contributions will form part of the 2015 agreement and may become legally binding subject to the outcomes of the discussions at COP21 and now the finalization of the Rulebook
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Background information on INDCs

- ▶ INDCs entail identification of the projects, policy and market instruments, programmes to be implemented to achieve the determined GHGs emission targets and adapt to climate change.
 - ▶ INDCs involve identification of the technology, transfers and finance required to mitigate and adapt to the impacts of climate change.
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Baseline info on NDC

- ▶ The INDCs were prepared based on GHGs emissions reduction for 2010
- ▶ The national GHGs emissions inventory in 2010 was estimated at 8703 Gg of CO₂ equivalent.
- ▶ The inventory was estimated for Carbon Dioxide (CO₂), Methane (CH₄) and Nitrous Oxide (N₂O)
- ▶ The inventory covered the Energy sector (mobile and stationary sources), Waste, and the Agriculture sectors.
- ▶ The estimated GHGs emissions increased from 3047.34 Gg of CO₂ eq. in 1990 to 8307 Gg of CO₂ eq. in 2010, representing over double increase over a 20 year period.

Project Selection

- ▶ Capacity to reduce ghg emissions
- ▶ Mitigation Capacity
- ▶ Adaptation Capacity
- ▶ Clean technologies

Minimising GHG emissions

- ▶ Energy efficiency
 - **Awareness** (the power switch...)
 - Building code (insulation)
 - Efficient appliances (incl. LPG)
 - Transport (hardware, planning, fuel-saving driving style)
- ▶ Renewable energy supplies
 - Solar power
 - Efficiency in fossil power generation
- ▶ Agriculture (livestock, fertilizers)
 - Livestock (number, fodder quality)
 - Arable farming (integrated soil nutrient management)
- ▶ Waste management
 - Recycling
 - Biogas

Potential areas for reduction - Energy

- ▶ Renewable energy Energy efficient appliances, processes and buildings
- ▶ Energy substitution: Cooking with LPG saves 50% energy
- ▶ Waste to Energy



Efficient appliances



Mini solar grid at Sandibe Lodge

Potential areas for reduction – Transport

- ▶ **Modal shift (railway, cycling)**
- ▶ **Transport planning**
- ▶ **Improved coordination**
 - Personal (Car pooling)
 - Freight
- ▶ **Substitute fuels**
- ▶ **Economic diversification**



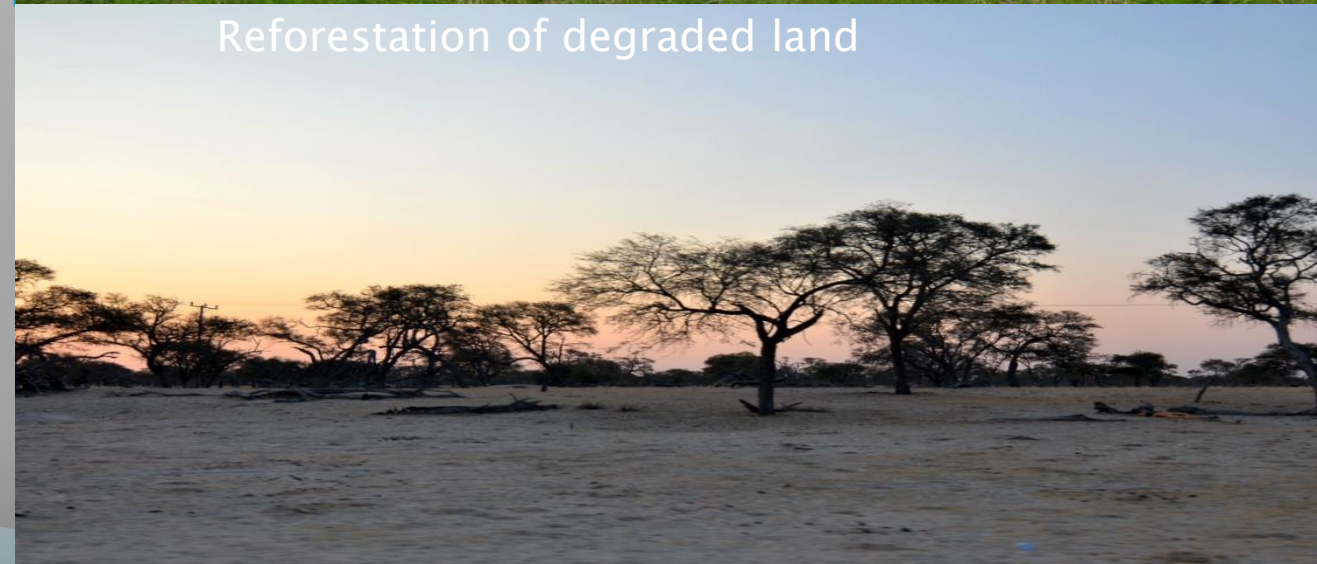
Electric vehicle at Chobe Game Lodge



Modal shift

Potential areas for reduction – Agriculture

- ▶ **Minimize CO₂ emissions**
 - **Regeneration of soil carbon**
 - **Grazing rotation**
 - **Reduced stocking density**
 - **Fire management**
- ▶ **Minimize non-CO₂ emissions (CH₄, N₂O)**
 - **Improved nutrition**
 - **Feed additions**
 - **Manure management**
- ▶ **Sequestration of GHGs**
 - **Reforestation**




Future Energy

Future Energy

- ▶ Are There opportunities????
 - Yes
- ▶ Botswana has abundant solar energy resources, receiving over 3,200 hours of sunshine per year,
- ▶ Therefore, the Government undertook a number of studies and projects, including;
 - i. Renewable Energy Feed-in Tariffs (2011)
 - ii. Solar Water Heating (2005)
 - iii. Biomass Potential (2007, 2009)
 - iv. Prefeasibility and feasibility studies for Concentrated Solar Thermal (CST) Technologies (2009, 2013), and
 - v. Construction of a 1.3MW solar photo-voltaic plant (completed in 2012) and
 - vi. Provision of RE products and services through BPC Lesedi (solar home systems; efficient biomass cooking stoves, rechargeable lanterns, etc.)

Motivation

- ▶ The contribution of RE in the energy supply continues to be insignificant at less than 1%.
 - ▶ Continuous imports of expensive power
 - ▶ Unclear roadmap to guide the GoB and the private sector on investment and utilization of RE technologies.
 - ▶ Need to adhere to international obligations on climate change.
 - ▶ Lack of informed and ministry wide approved RE targets.
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RE Strategy

Botswana embarked further on a number of studies, including

i. Botswana RE Strategy

OBJECTIVE:

Provide support to Government of Botswana in developing a framework to unlock country's RE potential


- a) Resource assessments
 - i. Solar
 - ii. Wind
 - iii. Biomass
- b) Power Sector Expansion modeling
- c) Roadmap

Italy/ Botswana MOU

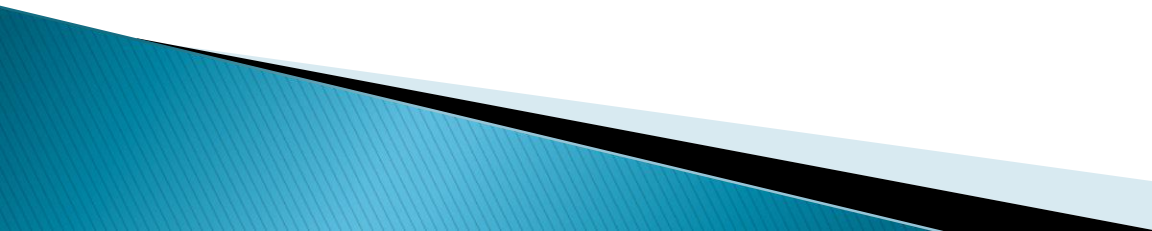
- ▶ It was in the margins of the Paris COP that we signed the MOU.
- ▶ Projects agreed came from the INDC.
- ▶ Projects agreed include:
 - Greening Buildings
 - Early warning
 - CSA.
- ▶ A dialogue between Botswana and Italy private sector in areas of Renewable energy held in Gaborone in July.
- ▶ Event very successful.

Climate Change Policy

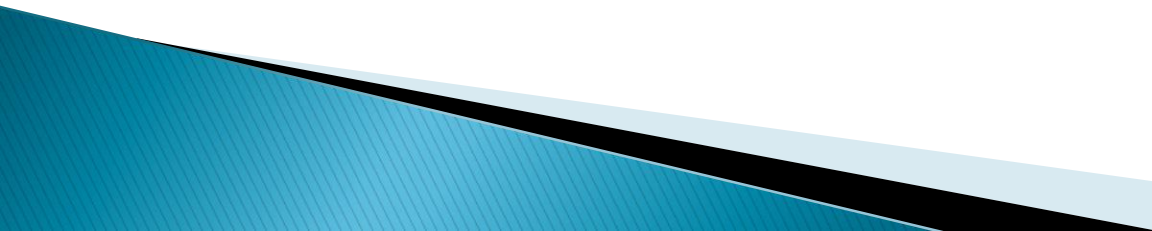
The National Climate Change Policy objectives are:

- To develop and implement appropriate adaptation strategies and actions that will lower the vulnerability of Botswana and various sectors of the economy to the impacts of climate change.
 - To develop action and strategies for climate change mitigation
 - To integrate climate change effectively into policies, institutional and development frameworks in recognition of the cross-cutting nature of climate change.
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Guiding Principles

1. Mainstreaming climate change into policies, legal frameworks and development planning
 2. Sustainable development and ensuring environmental sustainability
 3. Stakeholder participation in climate change policy implementation
 4. Awareness, information generation, education, training and capacity building
 5. Public, Private Partnership.
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CC Policy strategy and Action Plan

- ▶ Development of a Policy and Institutional Framework
 - ▶ Long Term Low Carbon Development Pathway/Strategy
 - ▶ National Adaptation Plan (NAP)
 - ▶ Nationally Appropriate Mitigation Actions
 - ▶ Monitoring Reporting and Verification
 - ▶ Technology Development and Transfer
 - ▶ Knowledge Management, Capacity Development, Education and Public Awareness
 - ▶ Financial Mechanism
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Thank you

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Solar Driven boat in Chobe