



### Towards Long-term Carbon Neutrality in Asia: Growing Importance of Forestry and Land Use Management -A case of Bhutan

# NOTE HAR CONSERVATION AND CHINESE

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### **National Context**



- Area: 38,394 km<sup>2</sup>
- Population: ~0.779 Million (NSB,2017)
- GDP Per capita US\$2879 (NSB, 2016)
- Agrarian Society: 69 % of population (Subsistence Farming)
- Tourism, Mining & Hydropower Main economic drivers

### **National Context**



- Total Forest Cover (71%, DoFPs, 2016)
- 51% Protected Areas (16,396 Km<sup>2</sup>)



### **National Context**



- 2009 -Bhutan –declared to remain carbon Neutral at UNFCCC COP 15 in Copenhagen, Denmark.
- Already carbon negative & reiterated to remain Carbon Neutral country (INDC, 2015)
- 6.3 million tons CO2 Sequestered ~ emission ( 2.2 million tons( NECS, 2013)

Bhutan isn't just carbon neutral — it's carbon negative | Tshering Tobgay, Prime Minister of Bhutan, 2016





https://www.youtube.com/watch?v=7Lc\_dlVrg5M

### **Mitigation**



• Hydropower: Green Energy

- 100 % Electricity generation
- Access (100 % Urban areas and 94 % in Rural Areas)
- offsets 4.4 million tons of CO2e -exports of hydroelectricity.

22.4 million tons of CO2e per year by 2025 in the region;

### **Policies and Legal Frameworks**



- Constitution of the Kingdom of Bhutan, 2008
  - 60 % forest cover for all times
  - Efforts to maintain 71
    % forest cover,
  - through sustainable forest management
  - conservation of environmental services



"The Government shall ensure that, in order to conserve the country's natural resources and to prevent degradation of the ecosystem, a minimum of sixty percent of Bhutan's total land shall be maintained under forest cover for all time."

Article 5 Section 3: Constitution of the Kingdom of Bhutan

### **Policies and Legal Frameworks**

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- NEPA 2007
- National Forest Policy 2011
- Economic Dev. Policy 2010&
   2015
- Low Carbon Dev. Strategy,2012
- Bhutan Transport
   2040:Integrated Strategic
   Vision



National Strategy and Action Plan for Low Carbon Development, 2012



### **1.**Sustainable forest management and conservation of biodiversity to ensure sustained environmental services

- Sustainable management of <u>forest management units</u> (FMUs), <u>protected areas</u>, <u>community forests</u>, forest areas outside FMUs, and <u>private forests</u>
- Enhancing forest information and monitoring infrastructure through <u>national forest inventories</u> and <u>carbon stock</u> <u>assessments</u>
- Forest fire management and rehabilitation of degraded and barren forest lands



- Launching in Nov 9-11, 2017
- A total start up fund -40 Million US\$
- THEMATIC AREA III: Reservoirs for Carbon and Regulators of Climate

#### **REDD + Readiness**



- Since 2010
- Dept. of Forests and Park Services, RGOB as the lead Agency
- National REDD+ Strategy and implementation framework
  - NFMS and Reference Emission Level
  - Measures to enhance conservation & sustainable management of forests
  - Safeguard Information System
  - Benefit Sharing Mechanisms

#### Build National Capacity

### **National Forest Inventory**



- First Phase Completed 2016
- Forest Cover and Tree Cover Statistics 2016
- Vol 2 by 2018: Carbon Stock, biomass, forest carbon, soil carbon, biodiversity, forest disturbances and health





#### 2. Promotion of low carbon transport system

- Improving mass transit and demand side management of personal modes of transport
- Exploring <u>alternative modes of transport</u> to road transport such as rail, water and gravity ropeways
- Improving efficiency in freight transport
- Promoting non-motorized transport and non-fossil fuel powered transport such as electric and fuel cell vehicles
- Improving efficiency and emissions from existing vehicles through standards and capacity building
- Promoting use of appropriate <u>intelligent transport systems</u>



3. Minimize GHG emission through application of zero waste concept and sustainable waste management practices:

- 3 R's principles including the conversion of waste to resources
- Improving the current system and infrastructure for waste management



### 4.Promote a green and self reliant economy towards carbon neutral and sustainable development

- Investments and adoption of cleaner technology, energy efficiency and environmental management in Manufacturing Industries
- Enhance and strengthen environmental compliance monitoring system
- Promote investment in new industries that are at higher levels in the value chain, and green industries and services.
- Promote industrial estate development and management in line with efficient, clean and green industry development objectives



#### 5. Promote clean renewable energy generation

- Pursue sustainable and clean hydropower development with support from CDM or other climate market mechanisms to reduce emissions
- Solar and Wind energy

600 KW Windmill at Rubesa , Wangduephodrang, Dawa Gylemo, 2016



6. Promote climate smart livestock farming practices to contribute towards poverty alleviation and self sufficiency

- Organic livestock farming and eco-friendly farm designs
- Improvement of livestock breeds, including conservation of native genetic gene pool/diversity
- Expansion of biogas production with stall feeding
- <u>Agro-forestry or agro-silvo pastoral systems</u> for fodder production



### 7. Promote climate smart agriculture to contribute towards achieving food and nutrition security

- Organic farming and conservation agriculture
- Development and promotion of sustainable agricultural practices
- Integration of sustainable soil and land management technologies and approaches



- 8. Energy demand side management
- promoting <u>energy efficiency</u> in appliances,
- Buildings, industrial processes and technologies.

### 9. Integration of low emission strategies in urban and rural settlements

- green-buildings,
- sustainable construction methods
- climate smart cities.

### **Future Needs**



### Institutional & Capacity Building

- Strengthening Institutions
- State of the Art-National Forest Laboratory
- HR Development: Both long-term and short term

#### Research

- Climate change impacts on Natural Resources and Adaptation
- Carbon Dynamics in Himalayan Forest Ecosystems
- Valuation of Forest Ecosystem Services
- Possible Pathways of low carbon development
- Technology Transfer for Climate Resilient Technologies and Infrastructures

#### • Financial Support

 Continued Global Financial support for climate change adaptation, mitigation and Conservation initiatives

#### THANK YOU !!

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