

A scenic view of snow-capped mountains in Bhutan. The foreground shows a traditional building with a golden roof and a white wall, partially obscured by green trees. The background features majestic, snow-covered mountain peaks under a clear blue sky.

# **Carbon Neutral Target and Role of Models in Bhutan**

## **BHUTAN**

**PHUNTSHO WANGDI (ME)**

**ROAD SAFETY AND TRANSPORT AUTHORITY**





# Country Profile

- Country : Bhutan
- Capital : Thimphu
- Area : 39394 Square Km
- Head of State : His Majesty The King
- Head of Govt : Prime Minister
- Population : 735553
- Female : 346692
- Male : 380453

# Carbon Neutral Target

- Climate Change is real and we all must act now or tomorrow may be too late.
- Bhutan during climate change conference COP 15 in 2009 declared our self as Carbon Neutral .
- 2015 Bhutan submitted Nationally Determined Contribution (NDC) under Paris Agreement.

- Bhutan reiterated our commitment to Carbon Neutral Country.
- To remain carbon neutral country Bhutan identified nine (9) action items.
  1. Sustainable forest management and conservation of biodiversity to ensure sustained environmental services.
  2. Promotion of low carbon transport system.
  3. Minimize GHG emission through application of zero waste concept and sustainable waste management practices.

4. Promote a green and self reliant economy towards carbon neutral and sustainable development.
5. Promote clean renewable energy generation.
6. Promote climate smart livestock farming practices to contribute towards poverty elevation and self sufficiency.
7. Promote climate smart agriculture to contribute towards achieving food security and nutrition security.
8. Energy demand side management by promoting energy efficiency in appliances ,building and industrial process and technology.

9. Integration of low emission strategies in urban and rural settlement through green building, sustainable construction methods and climate smart cities

2)\* (promotion of low carbon Transport System)

- Improving mass transit and demand side management of personal modes of transport.
- Exploring alternative modes of transport to road transport such as rail, water and gravity ropeways.
- Improving efficiency in freight transportation.



- Promoting non motorized transport and non fossil fuel powered transport such as electric and fuel cell batteries.
- Promoting use of appropriate intelligent transport systems

# TRANSPORT MODELS

- 2 models used to determined emission from Transport Sector
- Corinair (Core Inventory Air Emission and European Environment Agency)
- Excel based model was used to determine the level of emission from Transport Sector.
- IPCC (Intergovernmental Panel of Climate Change) .
- Guidelines for Green Gas Emission

- CGC (Computable General Equilibrium) Model is used for economy wide.
- Overall economy wide modeling are done by NEC (National Environment Commission) with support from IGES and NIES

# Model operations gaps

- Input data if not available, modeler do not provide own data unless it is expert judgment.
- Experts not available
  - Relied on consultants
  - Data collected after consulting concern stake holders
  - Difficulties in getting the data to be computed (gap)
- Data validation is carried out after consulting the concern stake holders

- However the situation is improving
- Officials trained and there is improvement in situation due to CGE.

# Model output

- Outcome of the models determine the roles of sector and relevant agencies
- Considered as government policies and government takes the ownership of the documents
- Future policies and action plans are drawn based on the outcome of model and implemented accordingly

# Challenges and lesson learned

- Good quality data.
- Lack of expertise
- Relying on expertise from outside not sustainable.
- Lack of resources.
- Coordination

# Road Map for Implementation





Q & A

Question kindly direct to  
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**THANK YOU**