

Low Carbon Development Strategy for Cambodia toward 2050

- A Preliminary Study -

This report introduces an ongoing study on systematic and quantitative design of low carbon development action in Cambodia. The main objective of this study is to formulate and propose a concrete low carbon development strategy in Cambodia towards 2050 and to engage research collaboration between the Royal Government of Cambodia and the research institutes in Japan. This research is being conducted in a collaboration between the Ministry of environment and Royal University of Agriculture, Cambodia and Kyoto University (KU), Institute for Global Environmental Strategies (IGES), and National Institute for Environmental Studies (NIES), Japan.

Why does Cambodia need Low Carbon Development? Low-Carbon Development is a guiding principle and strategy to turn the challenges into opportunities so that Cambodia can make headway towards sustainable economic growth and environmental sustainability with mitigating GHG emissions into the atmosphere.

How is the Low Carbon Development Strategy developed in Cambodia? This study so far has identified the **Four Policies** :

- Policy 1: Green Environment
- Policy 2: Harmonization of Green Economy, Society and Culture
- Policy 3: Blue Economy
- Policy 4: Eco-Village

to achieve low carbon development in Cambodia, and to attain the Four Policies, **a dozen strategies** are



Four Policies and

Policy 1: Green Environment

Sustainable forest management strategy

- Effective forest concession management through implementing effective law enforcement against illegal logging
- Promotion and implementation of REDD+
- Increasing carbon sequestration via forest restoration and replantation
- Forest ecosystem conservation and management



Sustainable waste management strategy

- Development of environmentally sound technology landfill sites through waste management strategy/plan, waste collection and segregation
- Minimization of waste and by-products and maximum use of renewable resources by implementing 3R principle and promote waste-to-energy technologies
- Environmentally sound waste management through allocation of waste disposal/storage and proper control of second hand goods import
- Promotion of local level self-governance and leadership to improve de-centralized coordination of waste management and segregation



Green agriculture management strategy

- Promotion of climate-smart agriculture which increases productivity, resilience (adaptation), and reduces/removes greenhouse gases (mitigation) while enhancing national food security
- Promotion of Eco-agriculture through the use of organic fertilizer such as biomass waste, bio-slurry, compost and livestock manure
- Introduction and implementation of system of rice intensification (SRI) to increase yield of rice without purchased inputs
- Introduction and implementation of integrated farming system (IFS)
- Sustainable land use and land management for agriculture purpose



Policy 2: Harmonization of Green Economy, Society, and Culture

Green transport management strategy

- Promotion of public transport in major cities by intensive urban mass transit facilities, better traffic management and development of non-motorized transport infrastructure
- Green belt development by planting trees along the roads and parks
- Freight modal shift for long-distance shipment
- Introduction of low-emission and energy-efficient vehicles
- Improvement of public transport service in the rural areas with the development of infrastructure for bus with reliable and affordable price



Green energy management strategy

- Encouraging the use of renewable energy through construction of hydro power plants and private sector participation with solar, wind, mini-hydro, tidal, and biogas/biomass, etc.
- Encouraging the use of smart appliance and home automation system including energy saving appliance, power control device, and fire protection and electricity appliance maintenance
- Encouraging all institutions and households to save energy



Green tourism management strategy

- Promotion and implementation of clean city, clean resort and good services
- Promotion of tourist attraction through introducing cultural heritages and natural tourism (eco-tourism)- Cambodia-Kingdom of Wonder
- Promotion of group tour with comfortable public transport
- Promotion of green flag competition and green award
- Encouraging tourists to recycle waste and to reduce emission



a Dozen Strategies

Green good governance and human resource development strategy

- Integrating green concept into curriculum from primary education to higher one as well as vocational and training
- Introducing and improving the green institutional management and arrangement
- Implementing green management initiatives and intellectual capital and green job
- Introducing and encouraging green concept into local communities to seek their participation for natural resource management
- Increasing human resource development throughout the country considering youth and gender participation for low carbon society

Green technology and investment strategy

- Promotion of green industries and industrial ecology
- Implementation of transfer of green technologies such as cleaner production, sustainable product innovation, renewable energy utilization
- Encouraging and incentivizing the investment in effective environmental protection and natural resource management
- Promotion of green business competition and green credit

Green financial mobilization strategy

- Green financial incentives including green tax and subsidy
- Adoption of green budget reform
- Implementing Payment for Environmental Services based on polluter pays principle to promote the internalization of environmental costs
- Conducting fund mobilization from development partners for green development
- Development of a sound market-based financial system to support resource mobilization, effective financial resource allocation



Policy 3: Blue Economy

Green merchant marine and sustainable coastal zone management strategy

- Introduction of emission standard in maritime transport through inspection and maintenance system
- Promotion of integrated coastal zone management
- Development and enforcement of the ballast water management to control marine invasive species



Policy 4: Eco-Village

Low carbon infrastructure development strategy

- Implementation of decentralized management system for a sustainable urban environment and better mobility
- Construction and rehabilitation of rural roads to facilitate local transportation, and making transit point to improve connection from one village to another
- Designing walkable city through providing comfortable and safe pavement
- Designing a standard road facility to differentiate between vehicle, motorist, and cyclist lane to avoid road accident and traffic congestion



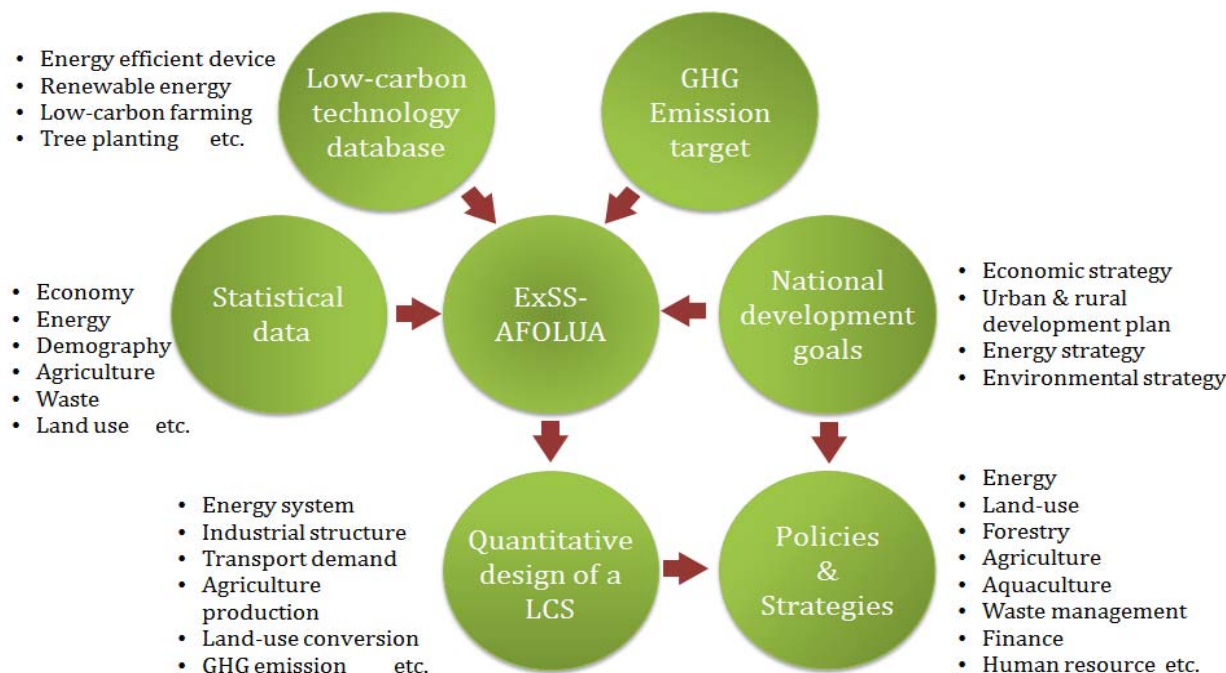
Green building design and construction strategy

- Promotion and implementation of green building designs and constructions through encouraging the use of energy efficient materials
- Increasing the use of wood for climate smart buildings and encouraging tree planting
- Encouraging embedding renewable energy and energy saving appliance in the building design



Methodology

The current research has been identified four tangible policies for low carbon development plan and a dozen strategies to reach the policies. In order to conduct quantitative analysis of the strategies, a couple of numerical models: **Extended Snapshot Tool (ExSS)** and **Agriculture, Forestry and other Land use Activity model (AFOLUA)** is being developed and applied. The models project quantitative future activities and environmental loads, and identify measures to be implemented in order to achieve certain environmental and other targets. Necessary information to apply the models includes: **Demography, Economy, Passenger Transport, Freight Transport Volume, Energy, Agriculture, Land Use, and Waste** as well as future goals of national development in various field.



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