



Development of
Low Carbon Society Scenarios for Asian Regions



COP19/CMP9
UNITED NATIONS
CLIMATE CHANGE CONFERENCE
WARSAW 2013

Roadmap and Actions toward Low Carbon Societies in Malaysia and throughout Asia

Ten Actions toward Low Carbon Asia

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Fellow

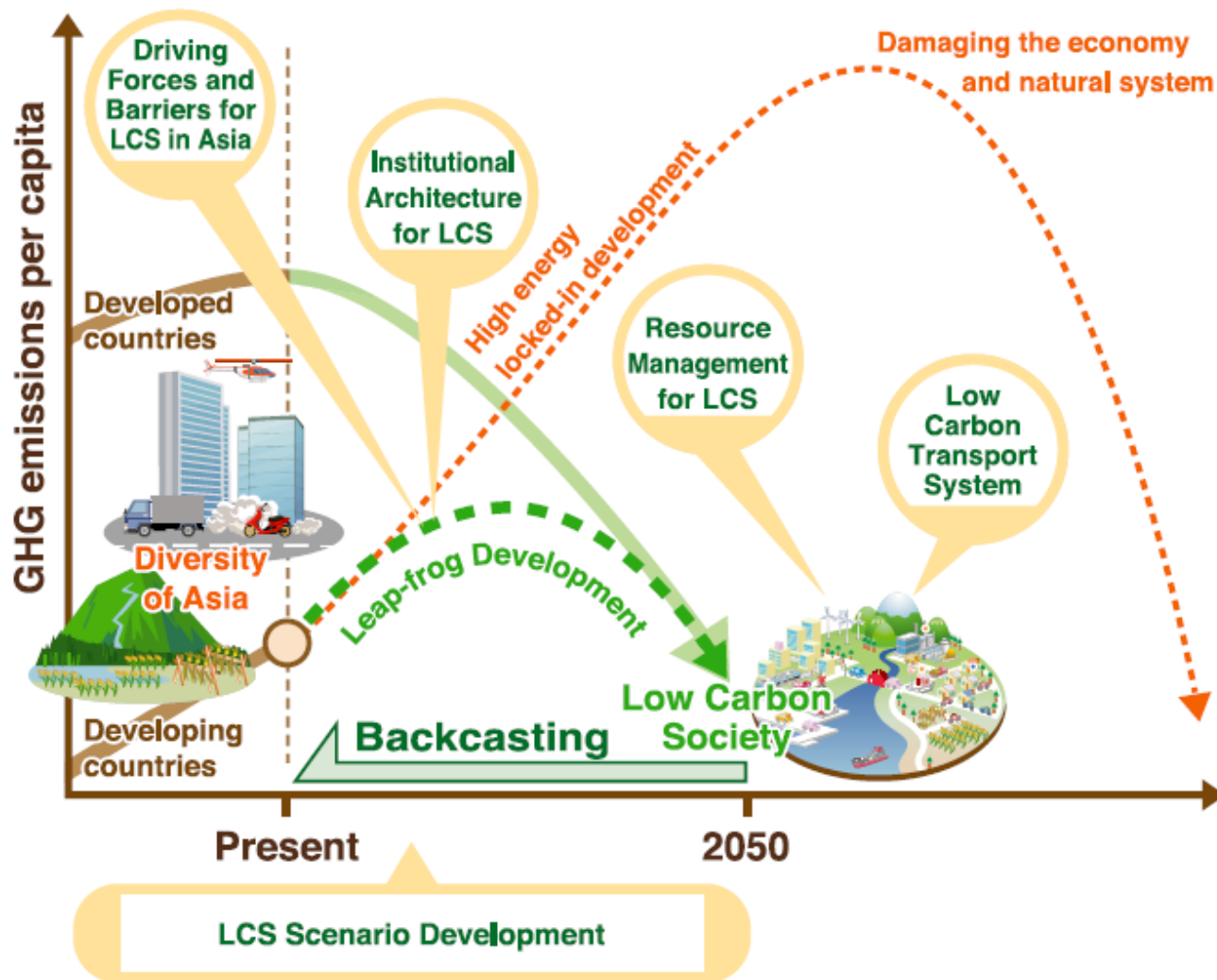
National Institute of Environmental Studies

Side event at Room Wroclaw

11:30-13:00, 15 November 2013

<http://2050.nies.go.jp/COP/COP19>

How can we make a transition to a low carbon society?



*The low-carbon Asia research Project is supported by the Environmental Research and Technology Development Fund (S-6)

Ten Actions towards Low Carbon Asia



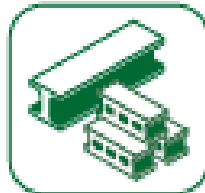
Action 1 Urban Transport

Structured Compact City



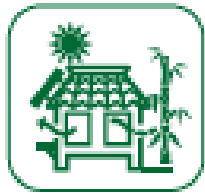
Action 2 Interregional Transport

Mainstreaming trains and water transportation



Action 3 Resources & Materials

Smart material use that realizes the full potential of resources



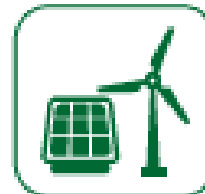
Action 4 Buildings

Smart buildings that utilize natural systems



Action 5 Biomass

Local production and local consumption of biomass



Action 6 Energy System

Low carbon energy system with local resources



Action 7 Agriculture & Livestock

Spread of high yields and low emission agricultural technologies



Action 8 Forest & Landuse

Sustainable forest management



Action 9 Technology & Finance

Technology and finance to facilitate achievement of LCS



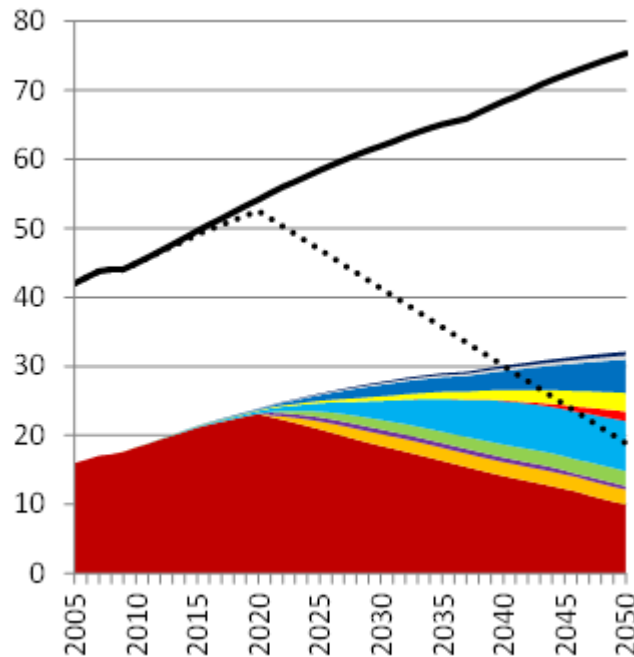
Action 10 Governance

Transparent and Fair Governance that Supports LCS Asia

There is potential to reduce GHG emissions by 69% compared to the reference case in Asia

- The global emissions will become 1.8 times larger compared to the 2005 level and emissions in Asia will be doubled under the reference scenario.
- It is feasible to reduce GHG emissions in Asia by 69% by introducing ten actions and Others (CH₄ and N₂O emissions from other than agriculture and livestock) appropriately compared to the reference scenario in 2050.

GHG emissions (GtCO₂e/year)



Reductions by

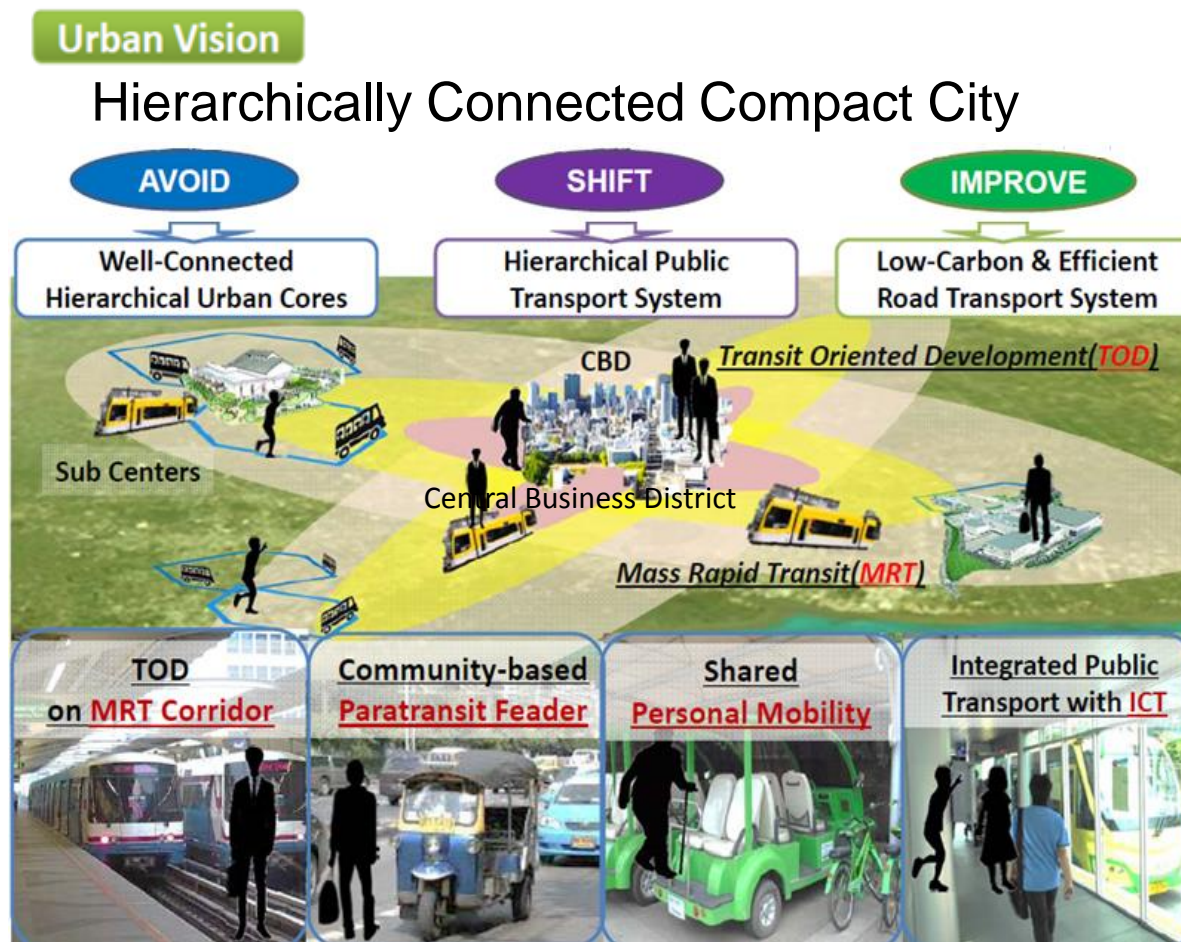
- Action1: Urban Transport
- Action2: Interregional Transport
- Action3: Resources & Materials
- Action4: Buildings
- Action5: Biomass
- Action6: Energy System
- Action7: Agriculture and Livestock
- Action8: Forest & Landuse
- Others (CH₄ and N₂O emissions from other than agriculture and livestock)

GHG Emissions in

- the world (Reference)
- the world (LCS)
- Asia (LCS)

Action 1: Hierarchically Connected Compact Cities

- Compact cities with well-connected hierarchical urban centers
- A seamless and hierarchical transport system
- Low carbon vehicles with efficient road-traffic systems



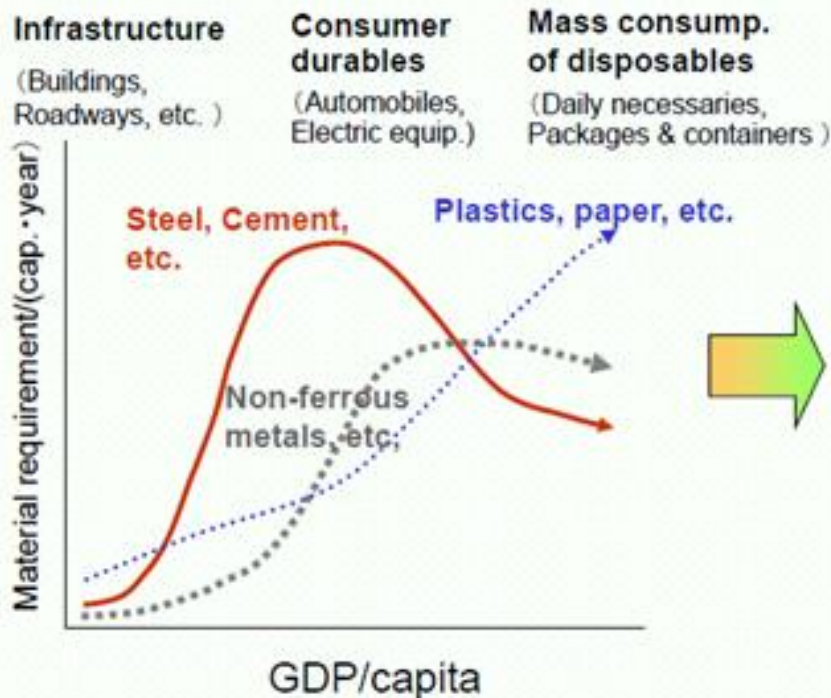
Action 3: Resources & Materials

Alternative development path in terms of resource consumption ?

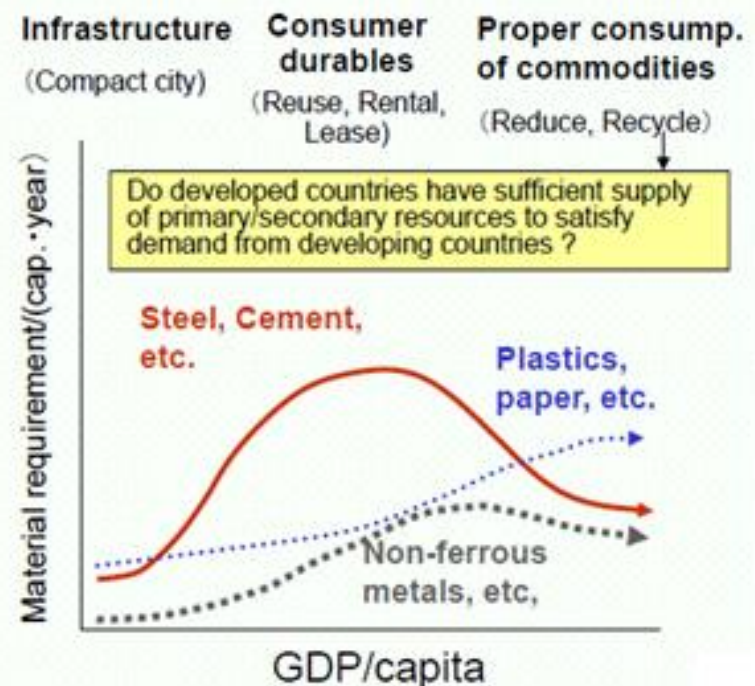
(Possibility of Circular Economy/Society)

$$\frac{\text{CO}_2 \text{ Emission}}{\text{GDP}} = \frac{\text{Material Req.}}{\text{GDP}} \times \frac{\text{Energy Consump.}}{\text{Material Req.}} \times \frac{\text{CO}_2 \text{ Emission}}{\text{Energy Consump.}}$$

Traditional growth pattern with mass consumption of materials

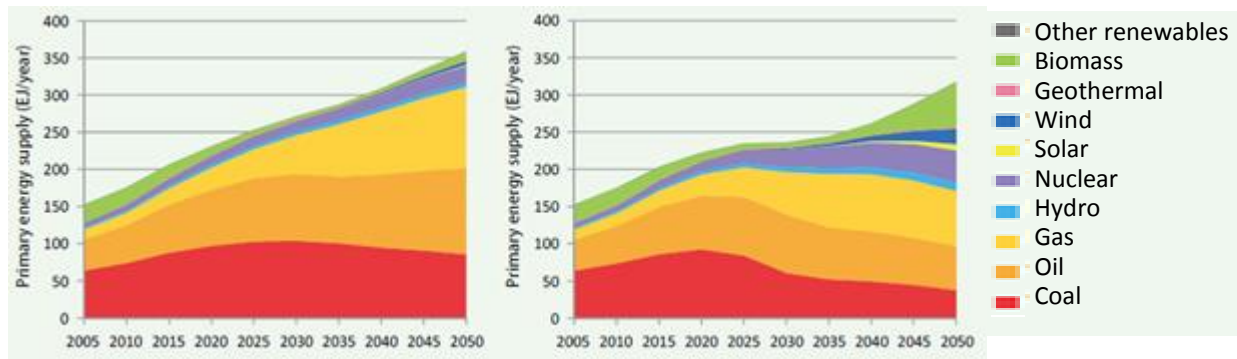


Alternative development pattern with low material, low carbon

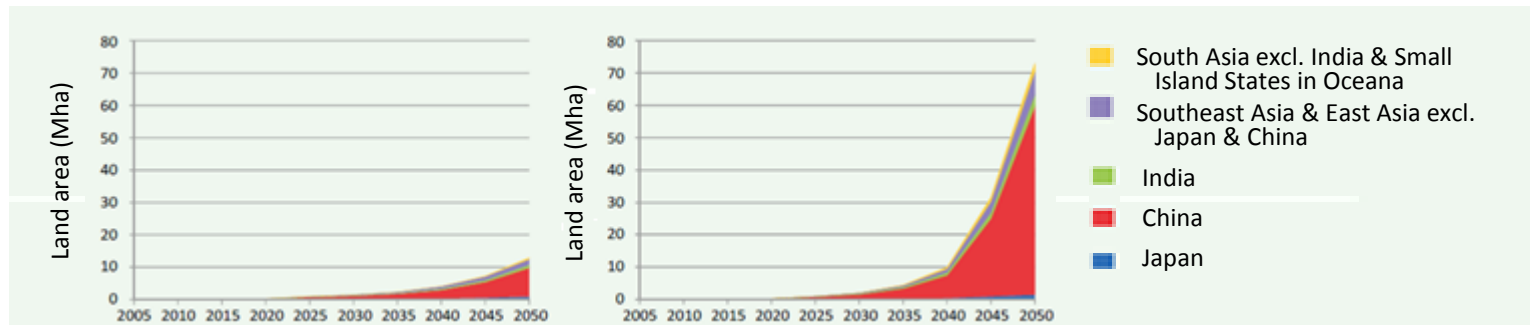


Action 5: Local Production and Local Consumption of Biomass

- Sustainable co-production of biomass energy and food
- Low carbon energy systems using local biomass resources in rural areas
- Improvement of living environments with intensive biomass utilization



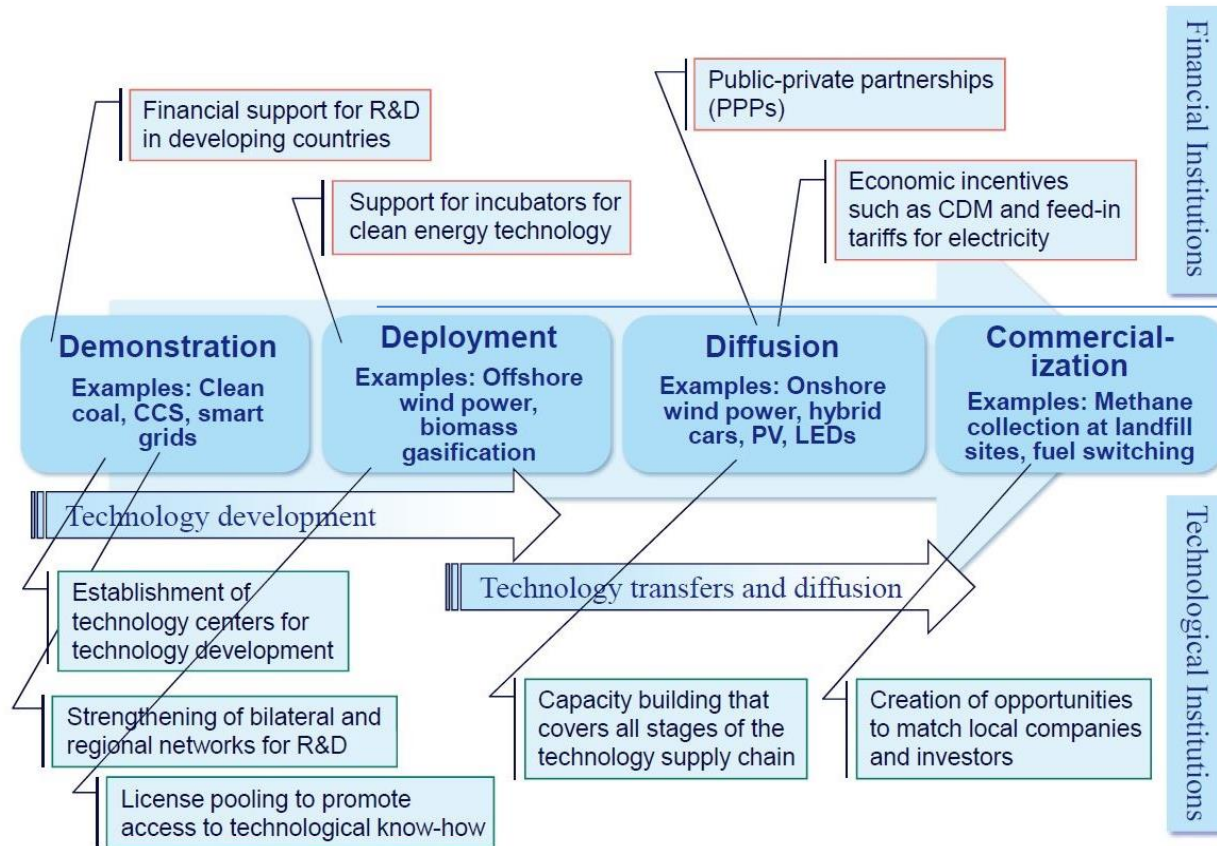
Primary energy supply: Reference scenario(left) and LCS scenario (right)



Land area for biomass production: Reference scenario (left) and LCS scenario (right)

Action 9: Technology and Finance for a Low-Carbon Society

- Promote private-sector R&D for LCS
- Establish adequate funding to support R&D and technology diffusion,
- Foster environmentally conscious consumers who choose low carbon products.



Examples of technological and financial institutions for each stage in the technology life cycle (barriers to technology deployment vary significantly by technology, country, and region)

Key Messages

Achieving 2°C target is feasible

If all the actions proposed here are applied appropriately, 69% of the emissions in the Reference scenario can be reduced in Asia in 2050. This is in line with a global pathway with the 2°C target.

Early actions are needed

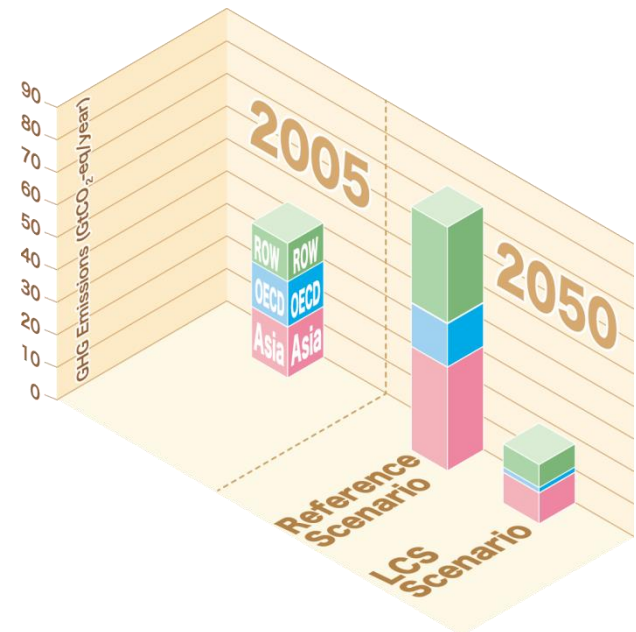
Whatever pathways are followed, GHG emissions should be reduced to zero in the long run to keep the climate at the corresponding level. More the actions are delayed, larger the reduction rates become and higher the stabilization level will be.

GHG emissions need to be below zero to lower temperature. To realize negative emissions is very tough.

There is a danger that socio-ecosystem will not be recovered even if GHG concentrations are returned to the lower level.

Leapfrogging development in Asia leads to a Low Carbon Society

Transition to low carbon emissions and low-resource consumption societies, while simultaneously improving the economic standards of living is vital for sustainable development. Asia has many opportunities to realize an LCS by leapfrogging.



Examples of Brochures introducing Asian Low Carbon Scenarios

Communication and feedbacks of LCS study to real world



Thank you very much!

<http://2050.nies.go.jp/COP/COP19>



The Low-Carbon Asia Research project is supported by the Environment Research and Technology Development Fund (S-6) of the Ministry of Environment, Japan