GHG Emissions Reduction Potential in Asia for the Two Degree Target

Asia's Low Carbon Future: Can Asia Change the World through Leapfrogging?

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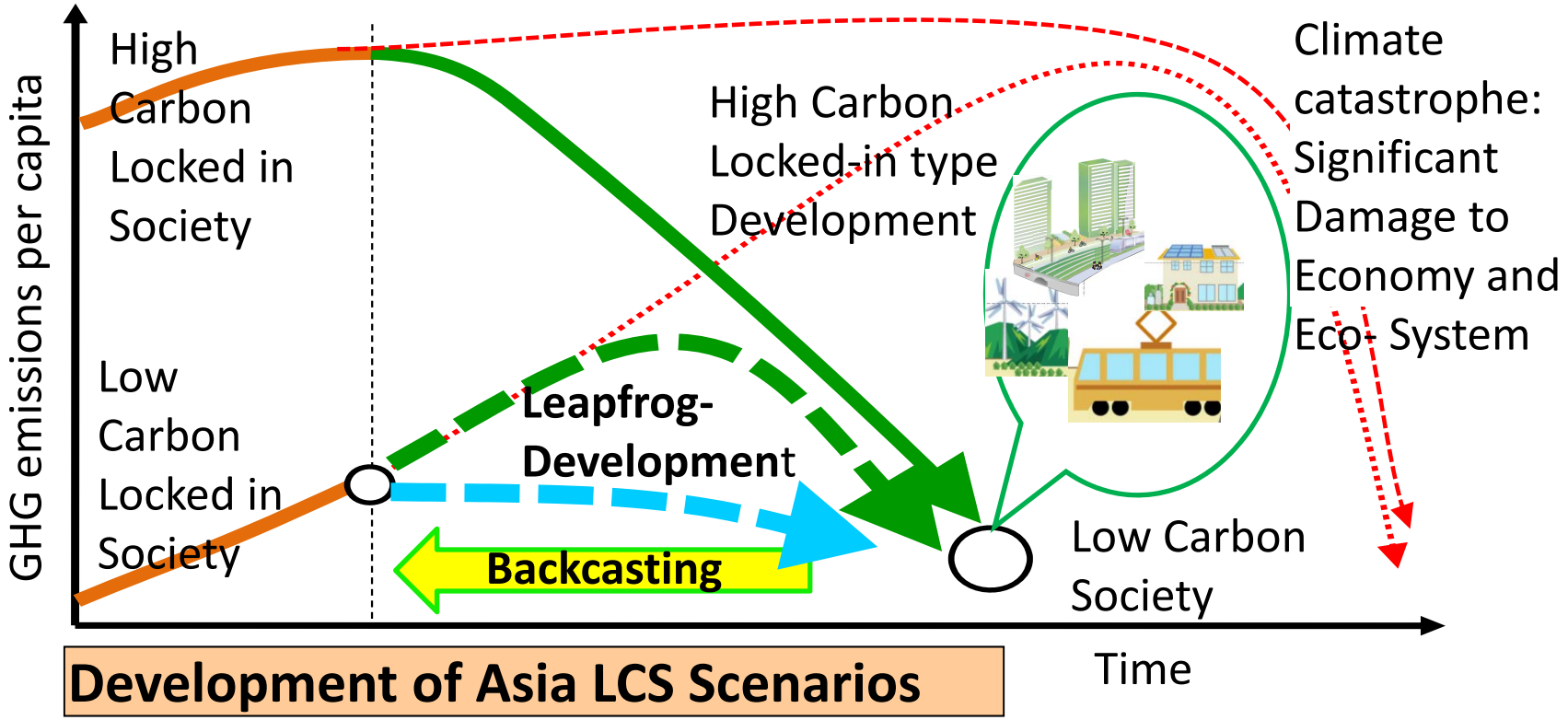
LoCARNet Side Event at Japan Pavilion at COP19

15 November 2013

Can Asia Change the World through Leapfrogging?



Development of Asia LCS Scenarios

(1) Depicting narrative scenarios for LCS
(2) Quantifying future LCS visions
(3) Developing robust roadmaps by backcasting

Policy Packages for Asia LCS

Funded by the Ministry of the Environment, Japan (GERF, S-6) and NIES
http://2050.nies.go.jp/index.html

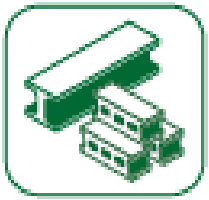
Ten Actions towards Low Carbon Asia are proposed

Action 1 **Urban Transport**

Structured Compact City

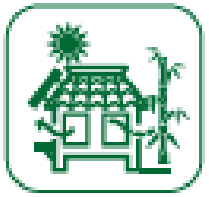
Action 2 **Interregional Transport**

Mainstreaming trains and water transportation



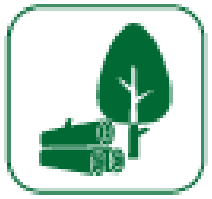
Action 3 **Resources & Materials**

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**

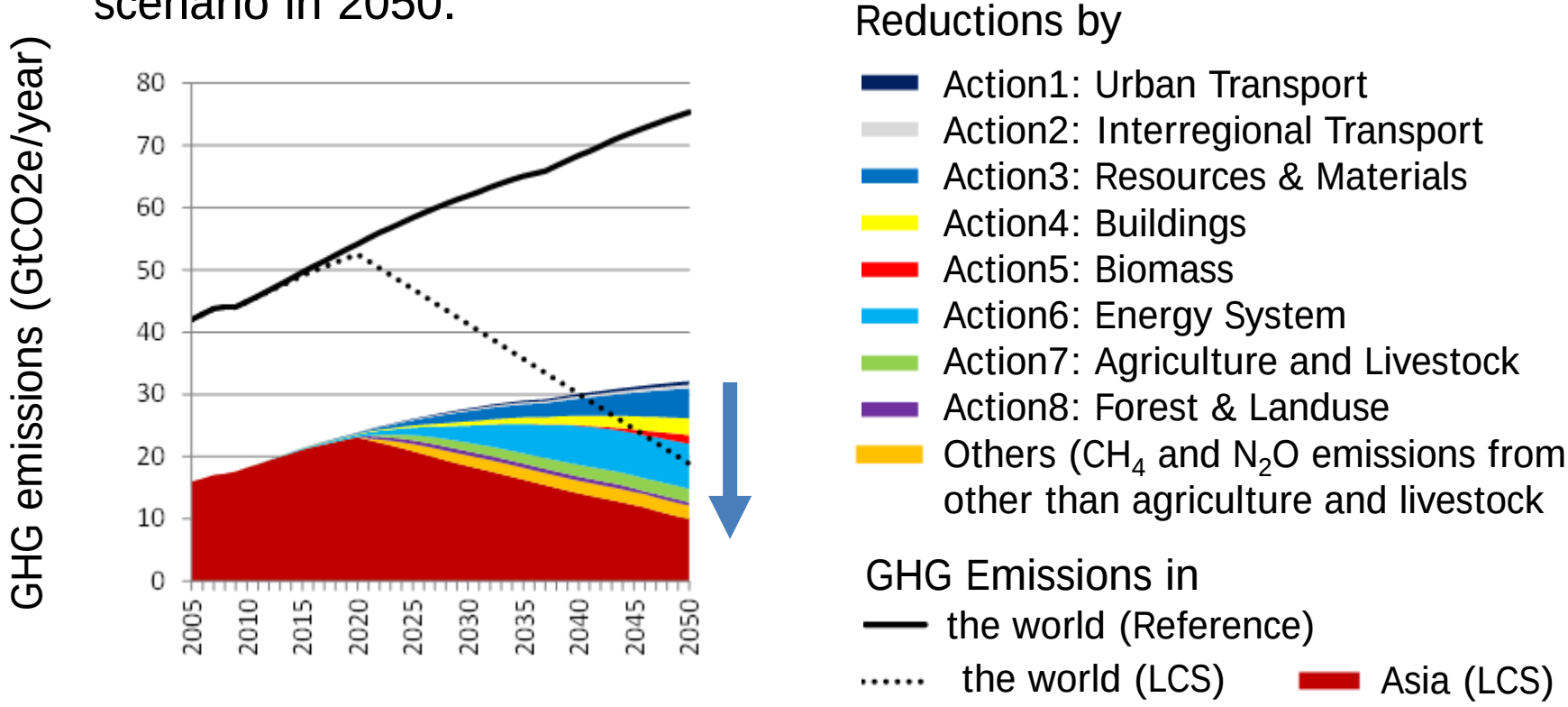
Technology and finance to facilitate achievement of LCS

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 (CH_4 and N_2O emissions from other than agriculture and livestock) appropriately compared to the reference scenario in 2050.



Action 3: Resources & Materials

Alternative development path in terms of resource consumption ?

(Possibility of Circular Economy/Society)

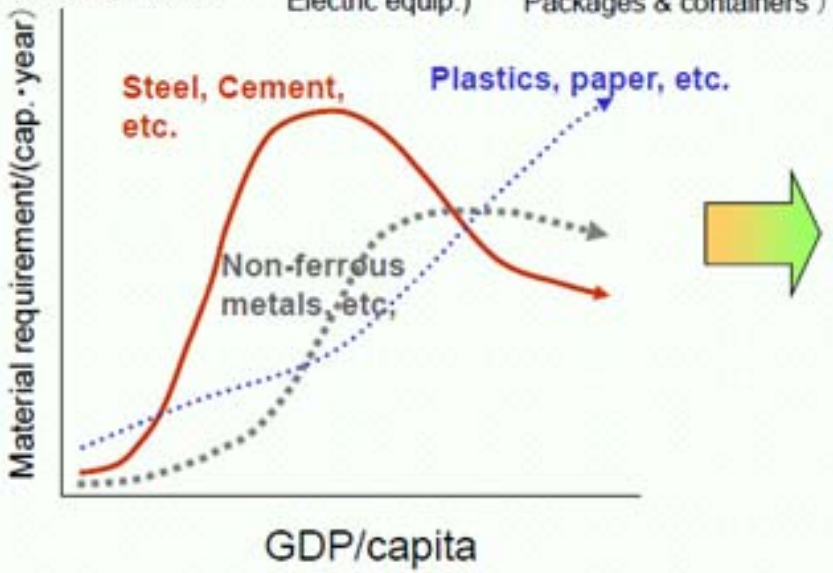
$$\frac{CO_2\ \text{Emission}}{\text{GDP}} = \frac{\text{Material Req.}}{\text{GDP}} \times \frac{\text{Energy Consump.}}{\text{Material Req.}} \times \frac{CO_2\ \text{Emission}}{\text{Energey Consump.}}$$

Traditional growth pattern with mass consumption of materials

Infrastructure (Buildings, Roadways, etc.)

Consumer durables (Automobiles, Electric equip.)

Mass consump. of disposables (Daily necessaries, Packages & containers)



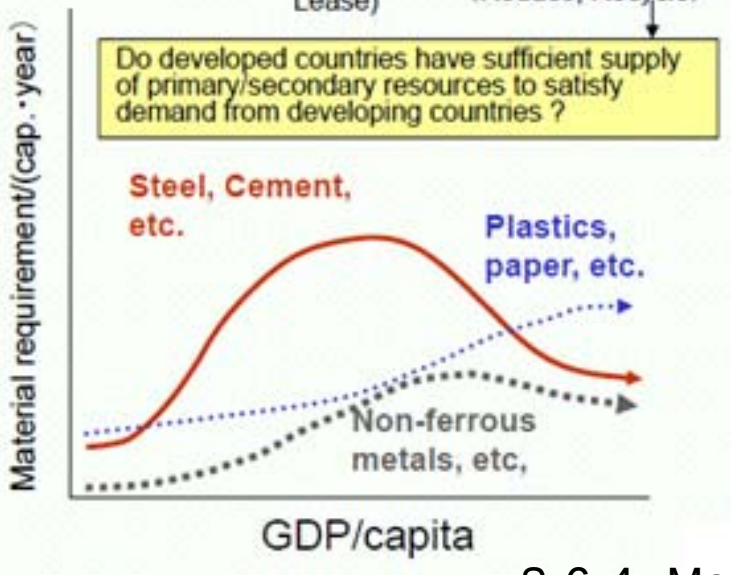
Alternative development pattern with low material, low carbon

Infrastructure (Compact city)

Consumer durables (Reuse, Rental, Lease)

Proper consump. of commodities (Reduce, Recycle)

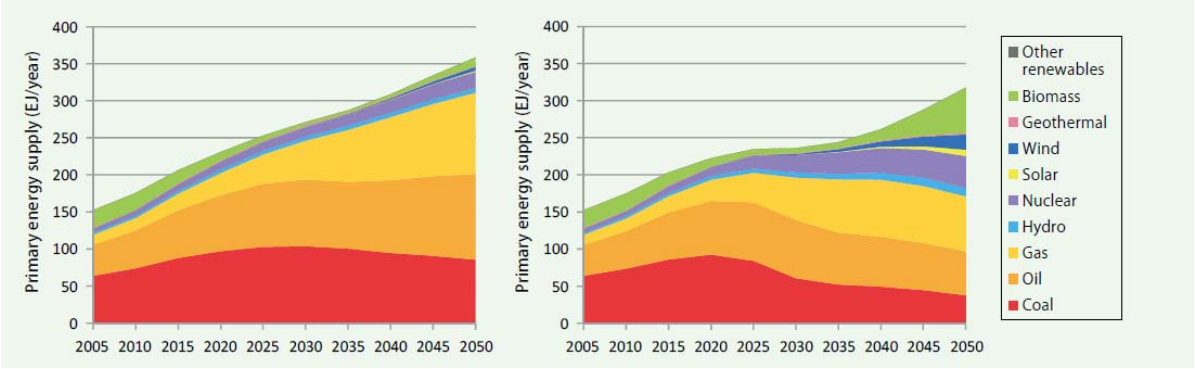
Do developed countries have sufficient supply of primary/secondary resources to satisfy demand from developing countries ?



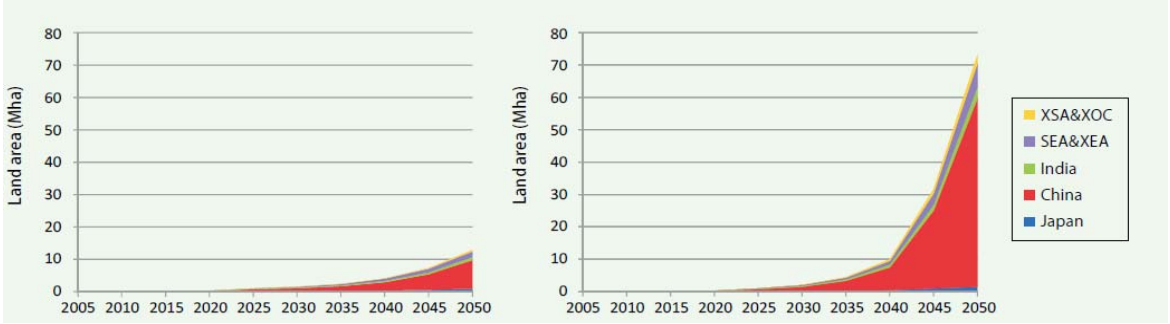
S-6-4: Moriguchi

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)

S-6-1: Masui

Key Messages

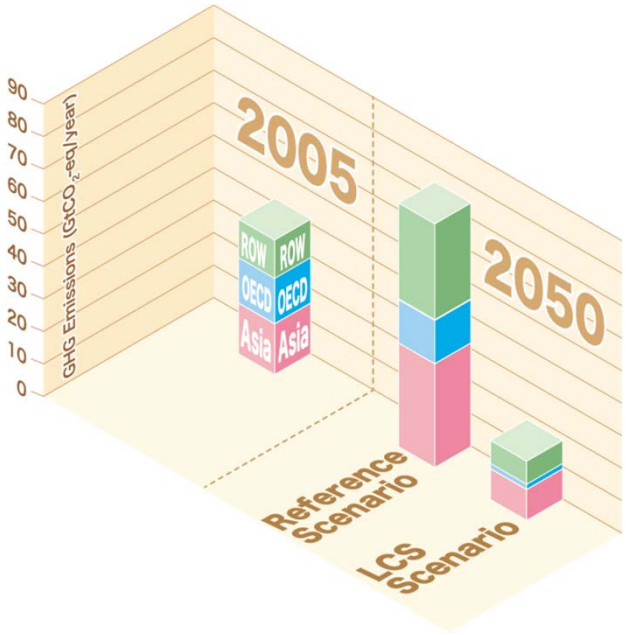
Achieving 2°C target is feasible

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 2oC 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.



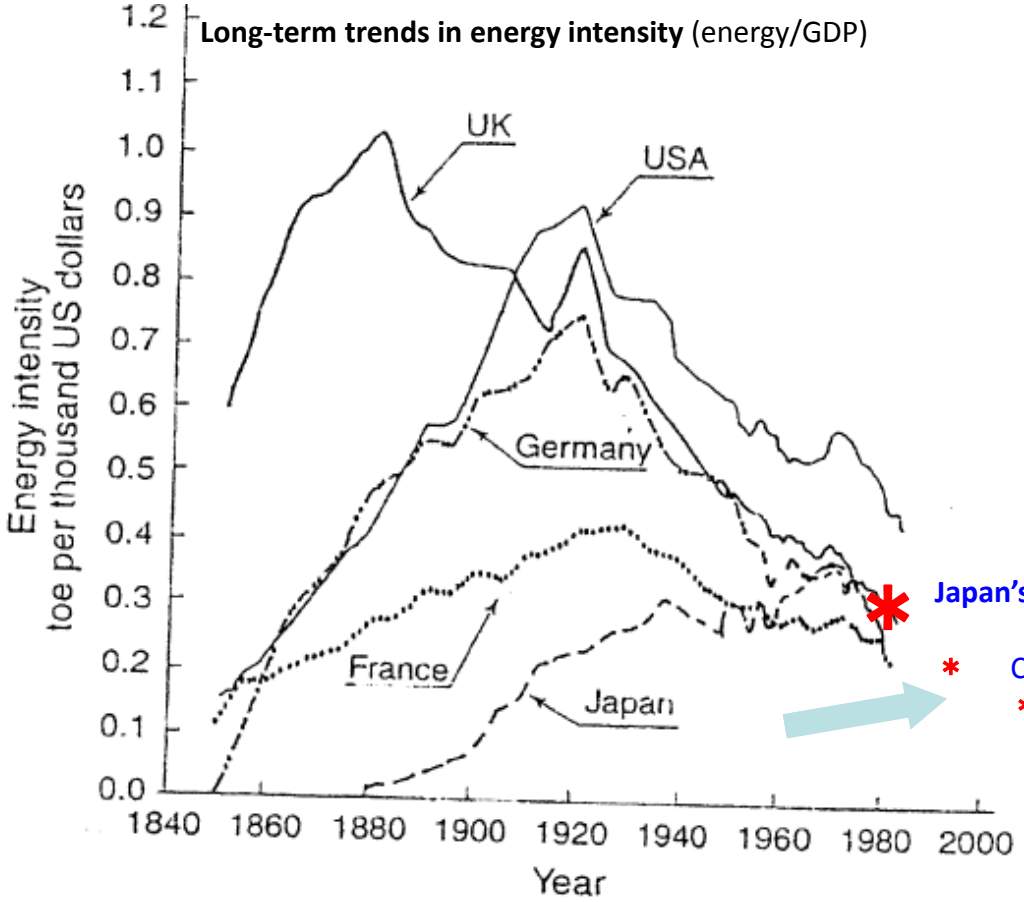
Leapfrogging development in Asia leads to a Low Carbon Society

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.

Opportunities for Asia:

Freedom from past track of highly energy-dependent technologies

Long-term trends in energy intensity (energy/GDP)



Possibility of Asian countries' Leapfrog leveraged by Climate Change

Japan's leap-frog in Oil Crisis

* China/ASEAN ?
* India ?
*

- **How can we facilitate technological leap-frogging to promote low carbon development?**
- **What kinds of mechanisms (international/national, market/non market) could facilitate leap-frogging to low carbon technologies?**

Examples of Brochures introducing Asian Low Carbon Scenarios

Communication and feedbacks of LCS study to real world

http://2050.nies.go.jp/LCS/

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