International Research Network for Low Carbon Societies

LCS·R Net

To assist countries integrating research into policy-making process towards LCS
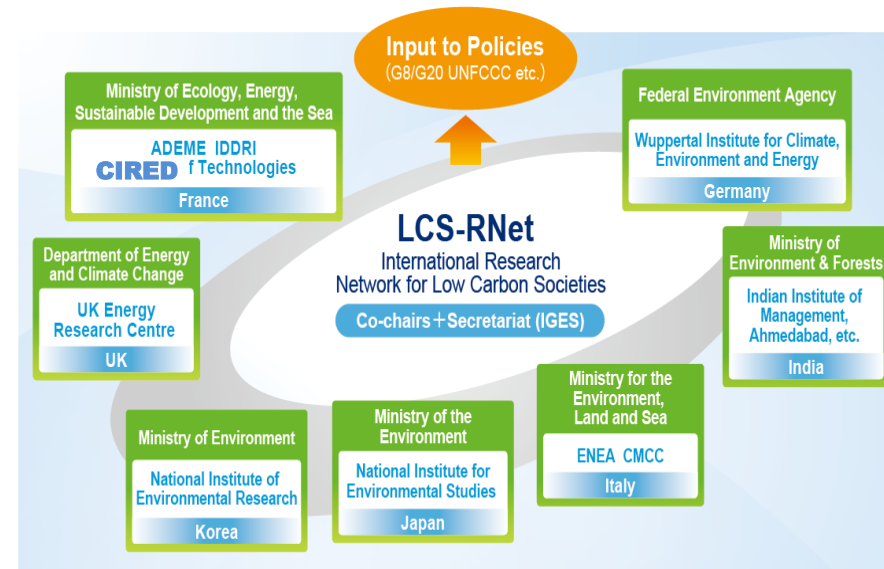
Low-Carbon Society Research in Asia

The Transition to a Low-carbon Society Socio-economic Considerations

24-25 May 2011
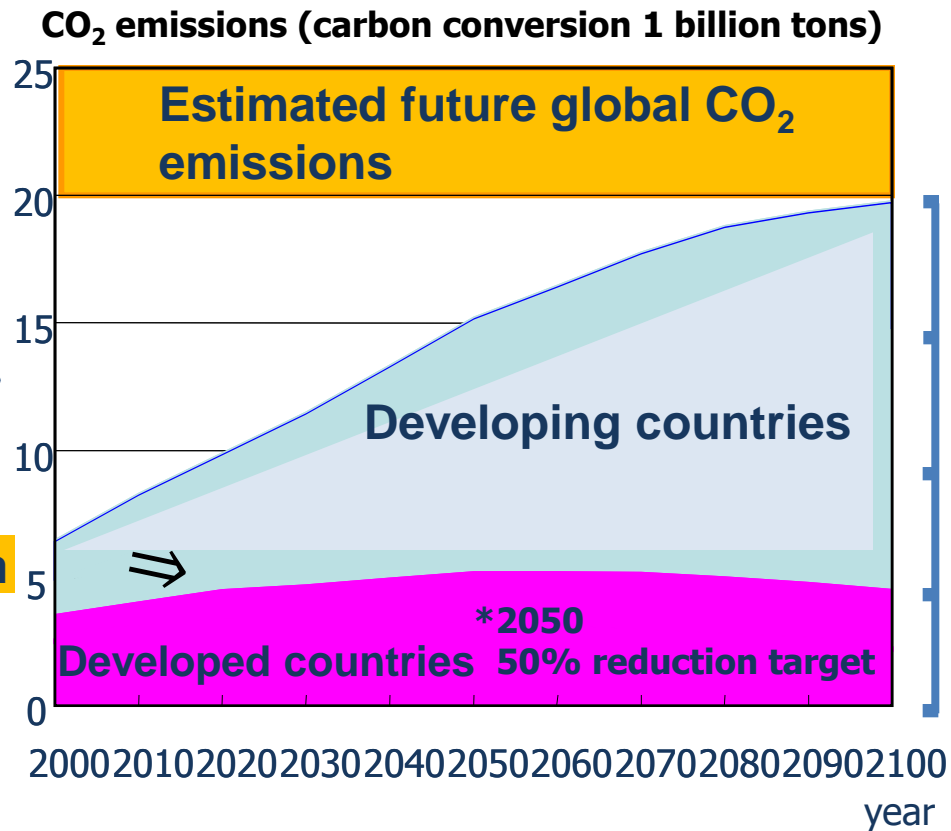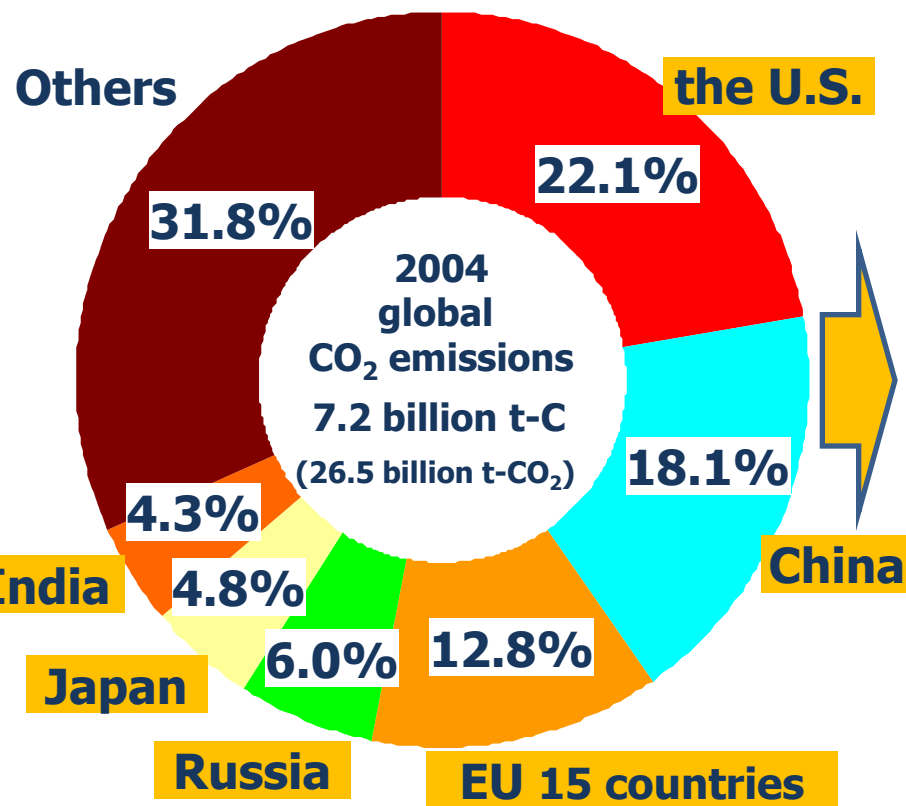
**Haus der Kunst, Kaiser Franz Ring 7
Baden, Austria**
Kyoko Miwa
LCS-RNet Secretariat/IGES

Input to Policies
(G8/G20 UNFCCC etc.)

Ministry of Ecology, Energy, Sustainable Development and the Sea
ADEME IDDRI
CIRED f Technologies
France

Federal Environment Agency
Wuppertal Institute for Climate, Environment and Energy
Germany

Department of Energy and Climate Change
UK Energy Research Centre
UK

LCS-RNet
International Research Network for Low Carbon Societies
Co-chairs＋Secretariat (IGES)

Ministry of Environment & Forests
Indian Institute of Management, Ahmedabad, etc.
India

Ministry of Environment
National Institute of Environmental Research
Korea

Ministry of the Environment
National Institute for Environmental Studies
Japan

Ministry for the Environment, Land and Sea
ENEA CMCC
Italy

- The importance of LCS in Asia

- Activities of LCS-RNet and its findings in Asia

- National and local actions

Cooperation with developing countries is key
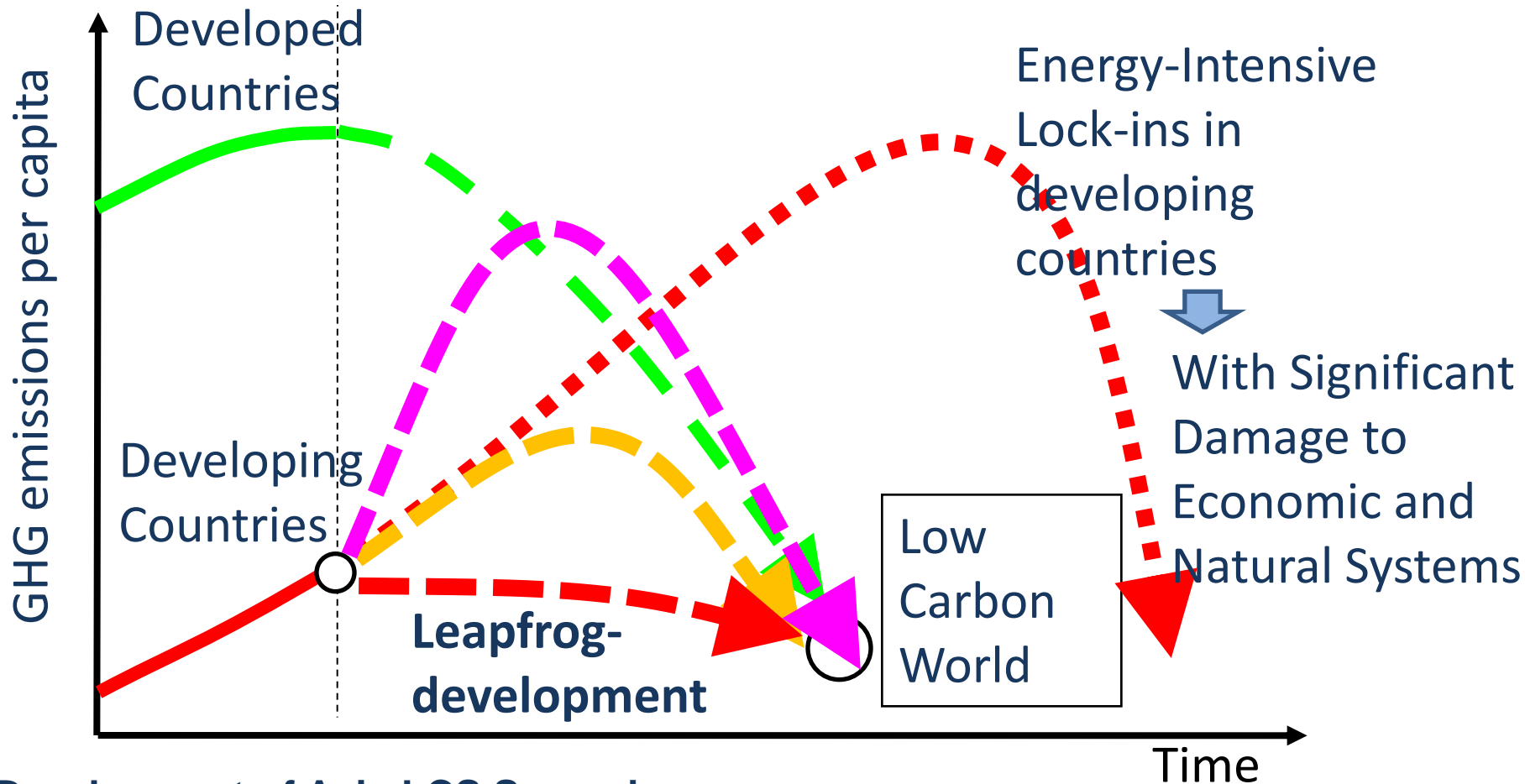## - As significant worldwide reduction is essential

Others 31.8%

the U.S. 22.1%

2004 global CO_2 emissions 7.2 billion t-C (26.5 billion t-CO_2)

India 4.3%

4.8%

Japan 6.0%

Russia

EU 15 countries 12.8%

China 18.1%

CO_2 emissions (carbon conversion 1 billion tons)

Estimated future global CO_2 emissions

25

20

15

Developing countries

10

5

Developed countries *2050 50% reduction target

0

2000 2010 2020 2030 2040 2050 2060 2070 2080 2090 2100
year

Made by the Ministry of the Environment, Japan based on Energy & Economics Statistics in Japan (2007 version)

Sources: Kainuma et al., 2002:
Climate Policy Assessment, Springer, p.64.

Kyoto Protocol framework for period subsequent to first commitment period (2013 onwards)

· *An effective framework capable of promoting maximum efforts to reduce emissions by non-signatory U.S. and exempt developing major emitter nations such as India and China is needed.*

Asian LCS scenario studies

GHG emissions per capita

Developed Countries

Developing Countries

Energy-Intensive Lock-ins in developing countries

With Significant Damage to Economic and Natural Systems

Low Carbon World

Leapfrog-development

Time

Development of Asia LCS Scenarios
- (1) Developing narratives for LCS scenarios
- (2) Quantifying future LCS visions
- (3) Developing robust roadmaps

Policy Packages for Asia LCS

- Encouraging the framing of LC policy in each Asian country
- Assistance for international negotiations scientific basis
- Networking among LCS research in Asia

LCS-RNet
-Low Carbon Society Research Network-

Researchers' network who dedicate to governmental policy making process to reach a Low Carbon Society responding to G8 and world leaders' requirements

- 16 institutions from France, Germany, India, Italy, Japan, Korea, UK
- 2nd Annual Meeting (2010, Berlin): 88 participants from **57 institutions from 23 countries** (including BRICs, Indonesia, South Africa) and 2 IGOs
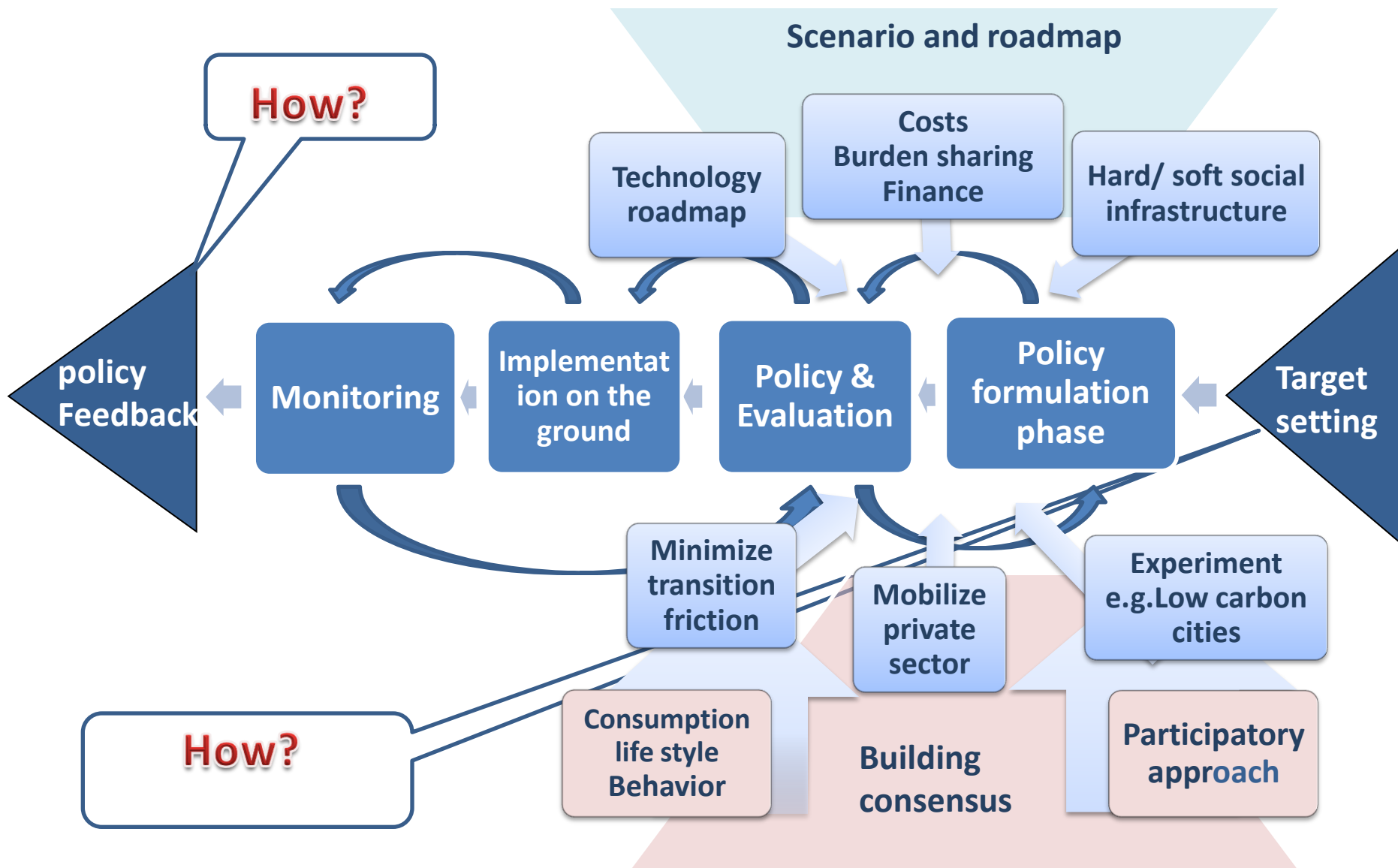
From findings of 2nd Annual Meeting in Berlin 2010

- Inter-linkages among society's components must be understood.
- Technologies and R&D alone cannot attain LCS.
- Modelling implications and limitations must be correctly understood.

http://lcs-rnet.org/

Antonio AVVARA

Stefan LECHTENBÖHMER Jim SKEA

Mikiko KAINUMA David MCLAUGHLIN P.R. Shukla

IGES
ADEME
ENEA
IDDRI SciencesPo.
ACADEMIE DES TECHNOLOGIES
CMCC
Wuppertal Institute
NIES JAPAN
UKERC
IIM AHMEDABAD
NRTEE
국립환경과학원
Fondazione Eni Enrico Mattei

Formulation of LCS
- To make real progress

Scenario and roadmap

How?

Technology roadmap

Costs Burden sharing Finance

Hard/ soft social infrastructure

Monitoring ← **Implementation on the ground** ← **Policy & Evaluation** ← **Policy formulation phase** ← **Target setting**

policy Feedback

Minimize transition friction

Mobilize private sector

Experiment e.g.Low carbon cities

How?

Consumption life style Behavior

Building consensus

Participatory approach

Activities with countries in Asia
by the LCS-RNet Secretariat/IGES

Dialogue between Policy-makers and researchers

- to identify research needs to support LCS policy -

Indonesia, Thailand, Cambodia, Malaysia (July 2011)

LCS-RNet fellowship

- To provide opportunities to learn methods and tools for LCS policy-making, develop local LCS scenarios India, Indonesia, Thailand, Cambodia (scheduled in 2011)

- to improve national and local level capacity to develop science based LCS policy of their own -

LCS model capacity-building WSs

NIES/Kyoto Univ builds capacity for AIM in China, South Korea, Vietnam, India, Thailand, Vietnam, Malaysia (July 2011)

Interviews with policy-makers and researchers

China, Republic of Korea, Vietnam, India, Cambodia

In Asia

Strong commitments of governments towards LCS

- Governments are considering LCS as an opportunity
  - Technology transfer, international finance, capacity-building for their SD
- Governments are showing a strong policy signal towards LCS
- Governments are willing to develop science-based policy-making

Diversity amongst countries in the region

- Due to the different stages of development, various geopolitical and graphical conditions, policies and target areas are varied and country-specific.
- No common generalised approach/policy can be applicable to different country
- Learning good practice from other countries is important when capacity is limited.

Background: After Copenhagen

Developed countries

❋ **Working on domestic legislation to fulfill international commitments, facing difficulty to gain public acceptance.**

Developing countries – both of major emitting countries and others

❋ **Recognizing Sustainable Green Growth/Development must the core of the national development plans,**

Key Findings - 1 -

Inventories can provide a strong basis for a scientific approach

- Countries that develop reliable inventories could be in a good position for CDM.
- As a next step, cooperation between researchers and policy makers is urgently required for research agenda setting.
- Lack of reliable activity data is a barrier for developing LCS scenarios.

Low carbon is not just about energy

- Major emission sources/target areas are;
  - Energy
  - Agriculture and Forestry
  - Transportation

Both adaptation and mitigation are important

- Adaptation is still given a priority in most countries
- For the effective use of limited resources, coordination of adaptation and mitigation policies is necessary.
- In urban areas, co-control of air pollution and GHGs is called for. Pollution control measures can be a good entry point to mitigate GHGs.

Key Findings - 2 -

Localization of transferred technology is necessary

- Technical know-how to support the localization of such technologies, as well as infrastructure changes for LCS, are important.

Decentralization is a key for various reasons

- Tradition of its political system (e.g. Indonesia)
- For energy supply – it is a way to improve the access to electricity promoting off-grid system using biofuels.
- For strategic national development plan
  - Sound agriculture community is important for the national development plan to become a food commodity supplier to neighboring countries (India, Cambodia), as well as to avoid problems of urbanization in big cities by keeping people in the agriculture communities for some countries

Innovative governance is called for

- Coordination of land use and energy policies and supporting institutional arrangement is needed.
- Inter-ministerial coordination is needed.

Key Findings - 3 -

Traditional values to promote LCS

- Sufficiency economy (Thailand) and "Mottainai" (Japan) as examples of traditional wisdom for the sustainable utilization of natural resource
- Mitigation in forestry sector: depend on the social system and local voluntary actions.

Coordination is a key in many ways

- Inter-ministerial coordination of LCS policy is necessary (i.e. land-use policies)
- Cooperation between policy and research communities

Sub-national level initiatives are important

- Since agriculture, forests and natural resources are target areas for mitigation, knowledge of local people for adaptation and natural resource management are important in designing mitigation.

	South Korea	China	India	Indonesia	Thailand	Vietnam	Cambodia
Appendix I & II of CA and NAMA	30 % GHG reduction by 2020 (from BAU scenario)	Voluntary lower CO2 emissions per unit of GDP by 40-45% by 2020 (2005 level)	Reduce the emissions intensity of its GDP by 20-25% by 2020 (2005 level)	Voluntary reduce emissions by 26% in 2020 (from BAU) or 41% if international fund available	-	-	-
NAMA	Positive	Positive, No international MRV	Positive, MRV with the external fund	Positive	Positive	Positive	Positive
Legislation	Framework Act on Low Carbon, Green Growth (2009)	12th Five Year Plan	National Action Plan for Climate Change (2008)	National Action Plan Regional AP	11th National Development Plan		National Strategic Development Plan
Institutional support particularly for LCS	◎ Led by the Presidential Committee on Green Growth	○	✕	✕	✕	✕	✕
Policy/focused areas	Cap-and-trade with targets	Domestic Emission Trading for Energy and Environment non-fossil fuels, forest coverage and stock	Carbon tax,, EE, transportation Star system for EE PAT(Performance Achievement and Trade)	Sustainable peatland and land use management EE, renewable, transportation	Crown Standard for EE for cities,		Decentralisation and deconcentration strategy
Coordination with other policies	○Combined foreign policy and resource security			○	○	○	○

	Korea, Republic of	China	India	Indonesia	Thailand	Vietnam	Cambodia
Socio-economic consideration	O	Gradually yea	OLow Carbon Strategy for Inclusive Growth as Indian version of green growth	O	O	O	O
Local level initiative		Pilot City Programme Gaps amongst provinces	Pilot City Programme	Gaps amongst provinces			
Private sector involvement	O	O	O				
Technology focus and considerations		Clean coal technology, nuclear, solar and solar heater, other renewables	EE and solar, building

Potential of nuclear may be not so high | Off-grid energy self-sufficient system in rural area | Nuclear | Off grid, decentralized supply system | Decentralized supply system |
| **Approach** | Top-down with participatory approach | Top-down or combination | Top-down or combination

NGOs play important roles for Bottom-up | Decentralized administration system | Top-down or combination、Sufficiency economy Traditional resource management | Top-down | Top-down |

LCS driven by sufficiency approach

Example of approach with traditional value in Thailand

- Community activities to conserve and restore natural resources
- Application of rules in using and managing natural resources and the environment
- Human Resource Development and Networks
- Awareness among community members of environmental conservation
- Application of Local Wisdom and Innovation
- Integrated practice in natural resource and environmental management
- Recognition of Carrying Capacity and Ecological Balance
- An adjustment of lifestyles in consistency with nature

Unity | Good governance | Incentive | Leadership

Willingness | Happiness

Sufficiency carbon economics society

Three different drivers

Muang Klang
▸ Leadership

Ban Pred Nai
Good governance

Chumporn Cabana Resort
• Unity

SCS / LCS — Happiness index vs CO2 emission
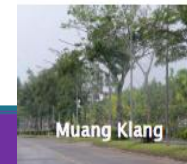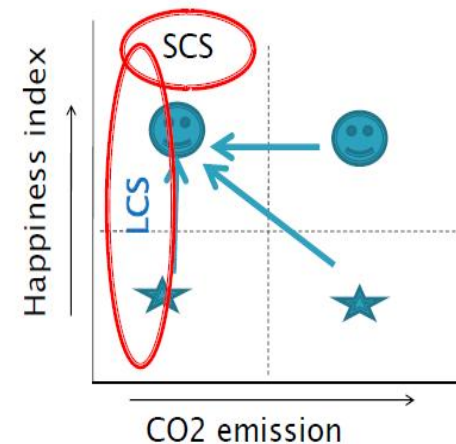
Low Carbon Policies and Actions in City Level

Sirintornthep Towprayoon

Joint Graduate School of Energy and Environment and Earth System Science Research Center
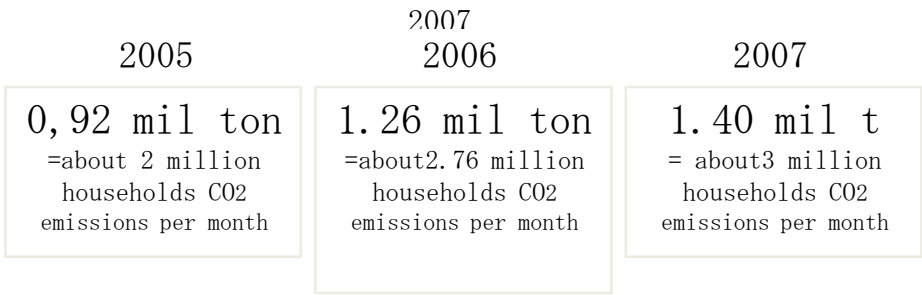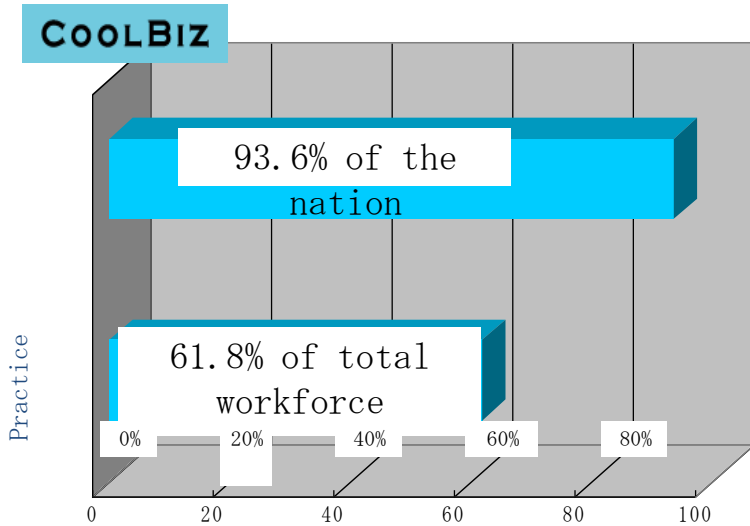King Mongkut's University of TechnologyThonburi

Conclusion

- The time is now to avoid carbon-intensive lock-ins and enable low carbon leapfrogs in Asia.

- Data and methods for inventorying GHGs, particularly from cities, are needed.

- Policy signals from central governments, supported by local initiatives, are becoming more visible in Asia.

- There is no one-size-fits-all LCS: policies and scenarios need to be tailored to local contexts.

- LCS is a two way street: LCS research should inform policy, experiences with policies should inform research.

- Innovative governance with the institutional coordination (horizontal and vertical) must be sought.

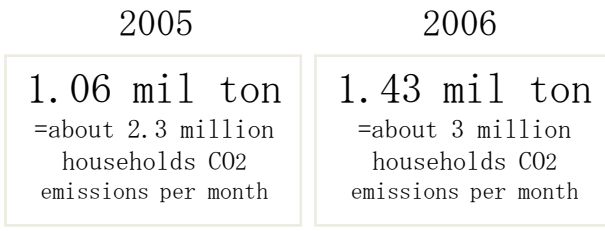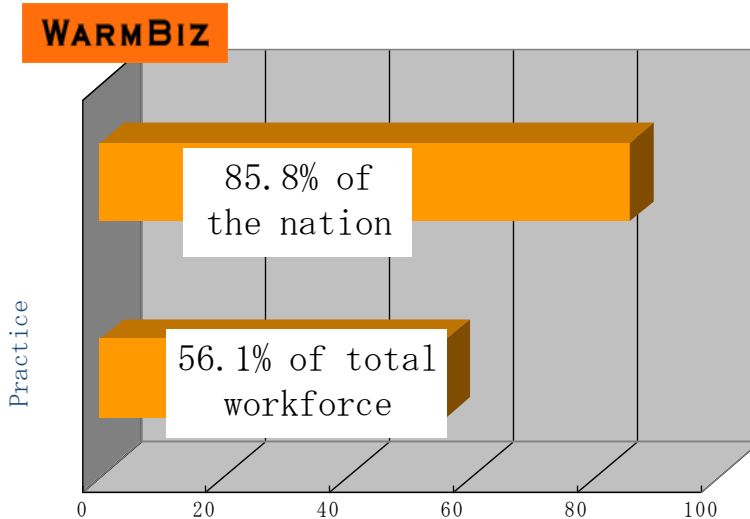# Quantification of policy-led practices
Cool-Biz and Warm-Biz in Japan

「Measure1」 Recognition・Practice (2008)

COOLBIZ

93.6% of the nation

61.8% of total workforce

Practice

0%   20%   40%   60%   80%

0   20   40   60   80   100

WARMBIZ

85.8% of the nation

56.1% of total workforce

Practice

0   20   40   60   80   100

CO_2 reduction at the office resulted in; 2005-2007

2005	2006	2007
0,92 mil ton	1.26 mil ton	1.40 mil t
=about 2 million households CO_2 emissions per month	=about2.76 million households CO_2 emissions per month	= about3 million households CO_2 emissions per month

=total 3.58 million ton

2005	2006
1.06 mil ton	1.43 mil ton
=about 2.3 million households CO_2 emissions per month	=about 3 million households CO_2 emissions per month

=total 2.49 million ton

Examples of LCS related Research

Mitigation potential
NAMA potential in Brazil – Difference between w or w/o NAMA

Examples of LCS related Research

Mitigation potential

Breakdown by types of finance in Indonesia
– Mix of domestic and international NAMA, and with credit

Emission under BAU

Unilateral NAMAs

Supported NAMAs

NAMAs for C-credit

Rate of emissions

Time

2020

Self financing but some part which is not interest of the country have to be supported

26%

Implementation need private capital or high investment – need TT, CB, investment support

41%

Through market mechanism

|	BAU	26%	41%
Energy	1.05	0.77	0.62
All	3.05	2.26	1.80
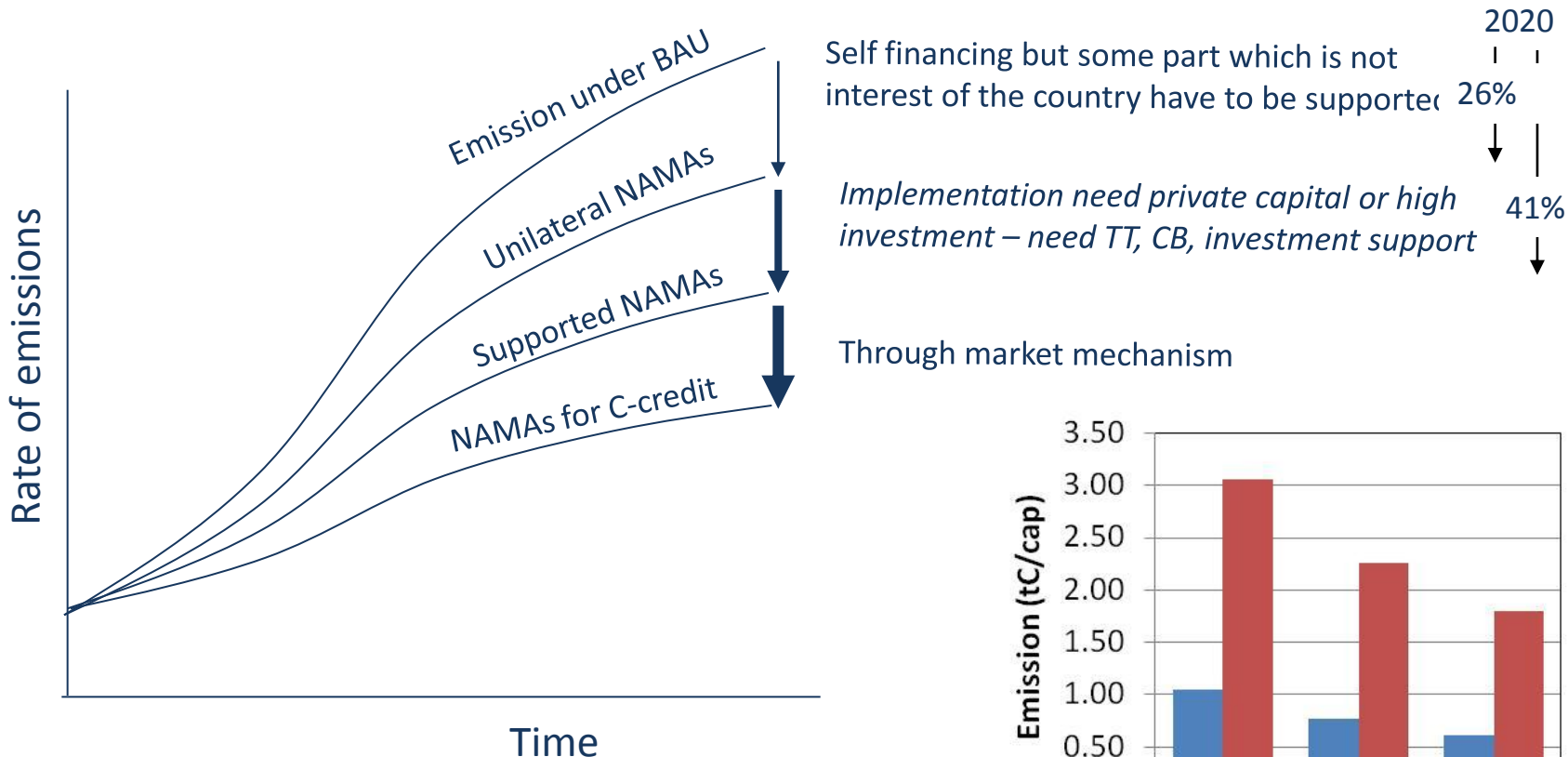
Source: Presentation titled "Research Needs for Low Carbon Development/ Green Growth" by Rizaldi Boer, Centre for Climate Risk and Opportunity Management, IPB, and Retno Gumilang Dewi, Centre of Energy Research, ITB, at "Sustainable Low-Carbon Development in Indonesia and Asia: Dialogues between Policymakers and Scientists on Green Growth", Bogor, Indonesia, 16 February 2010

# Suppressed Demand: An example of space heating in low income housing
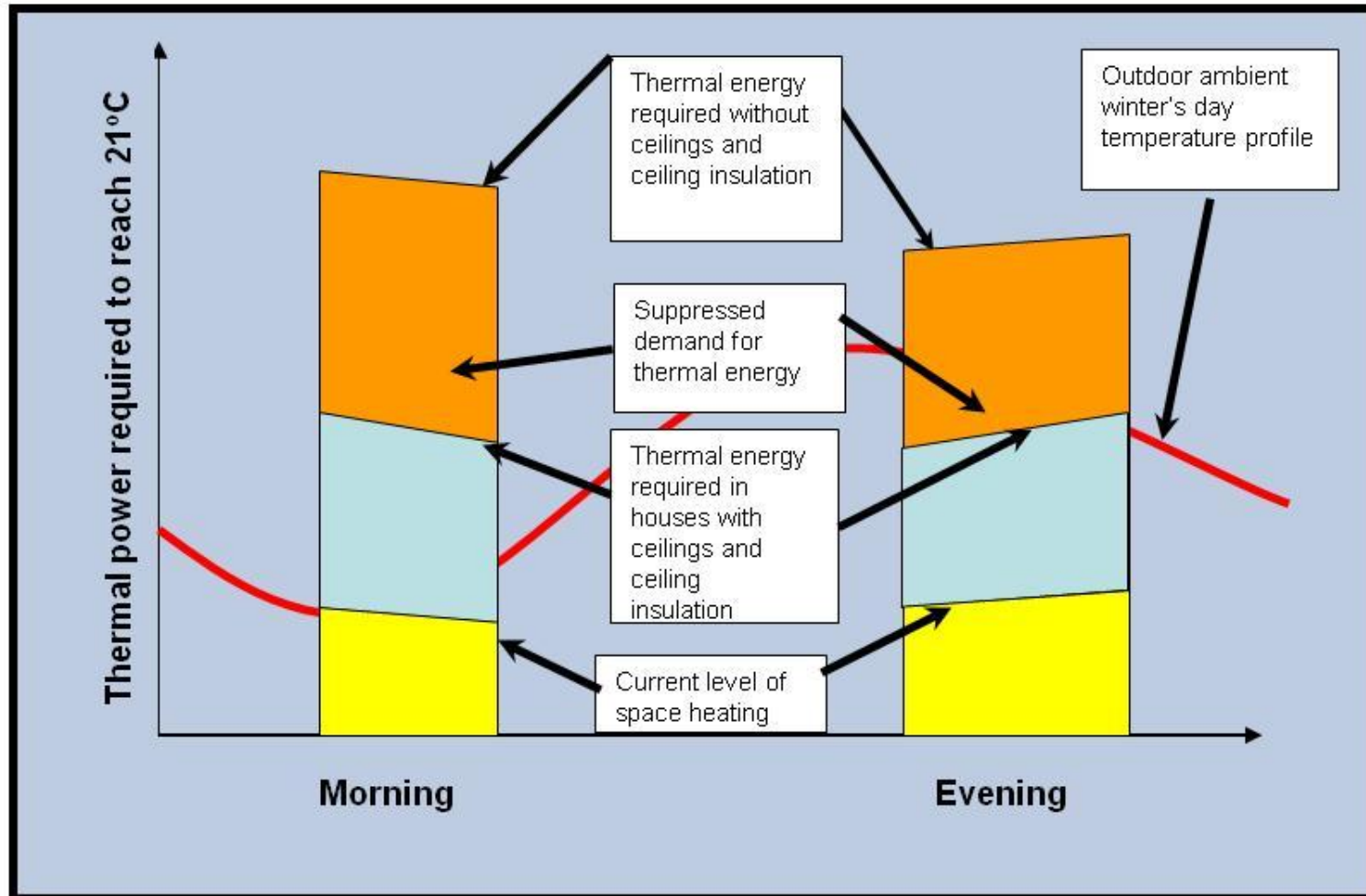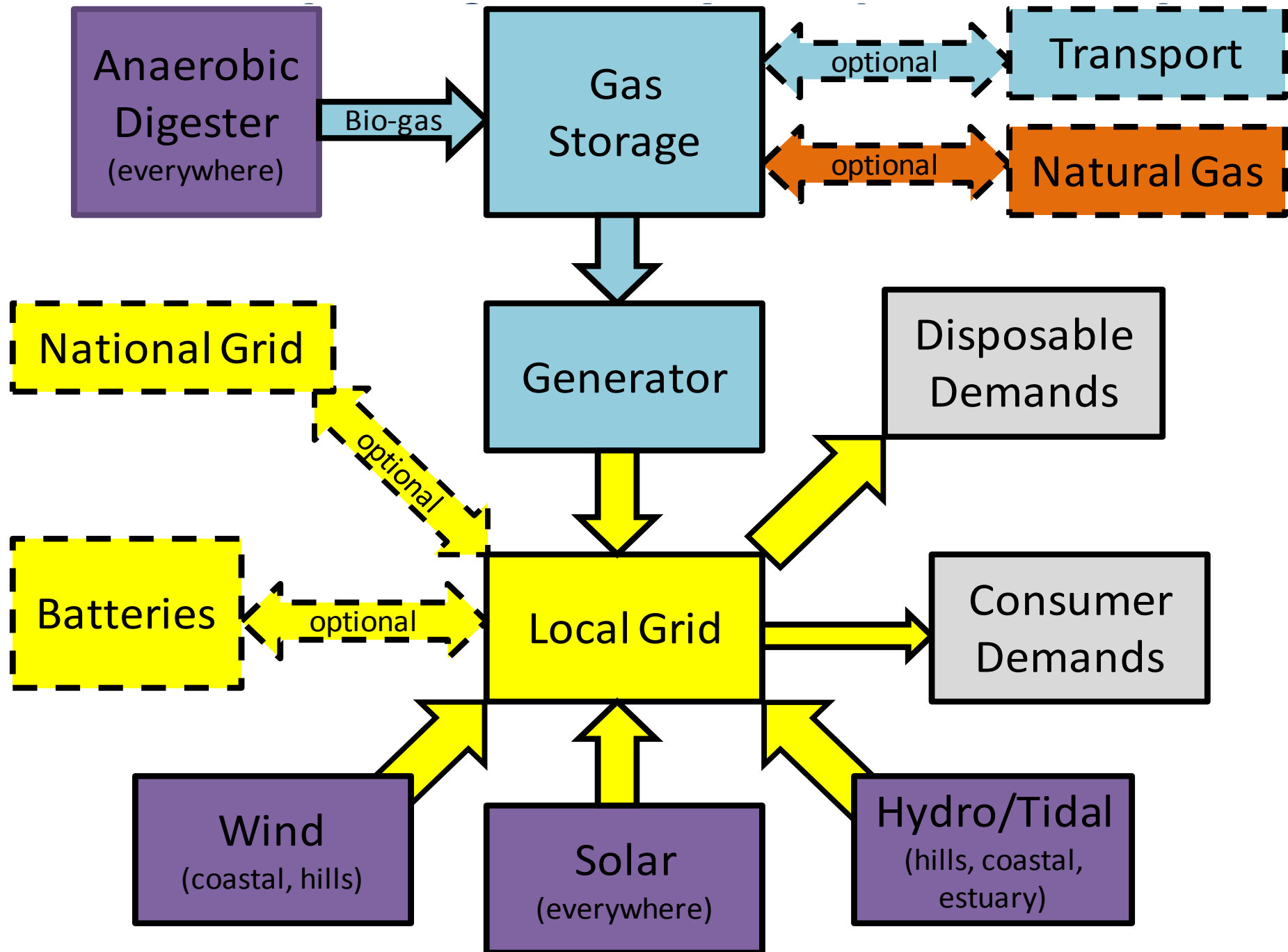
This can be achieved by prioritizing growth opportunities according to their impact and feasibility

Identify hypotheses for new growth opportunities

Impact

Feasibility

Prioritized new sector opportunities
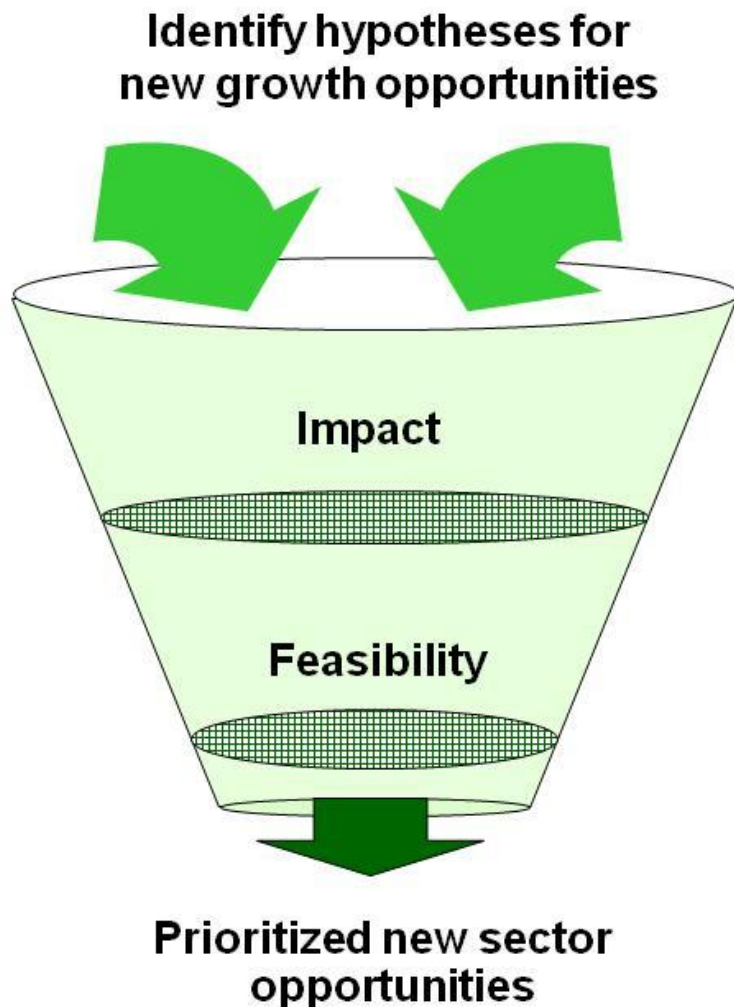
Methodology

- Interview local business people, government officials and academics
- Review East Kalimantan economic development plan
- Perform "outside in" analysis of relevant international benchmarks

- Assess potential impact on:
  - GDP growth
  - Average incomes
  - Carbon emissions

- Determine the feasibility of East Kalimantan capturing the growth opportunities, based on interviews with sector experts, businesses, academics, and government officials

Projection of CO2 emissions under the reference scenario
- AIM B2 Scenario
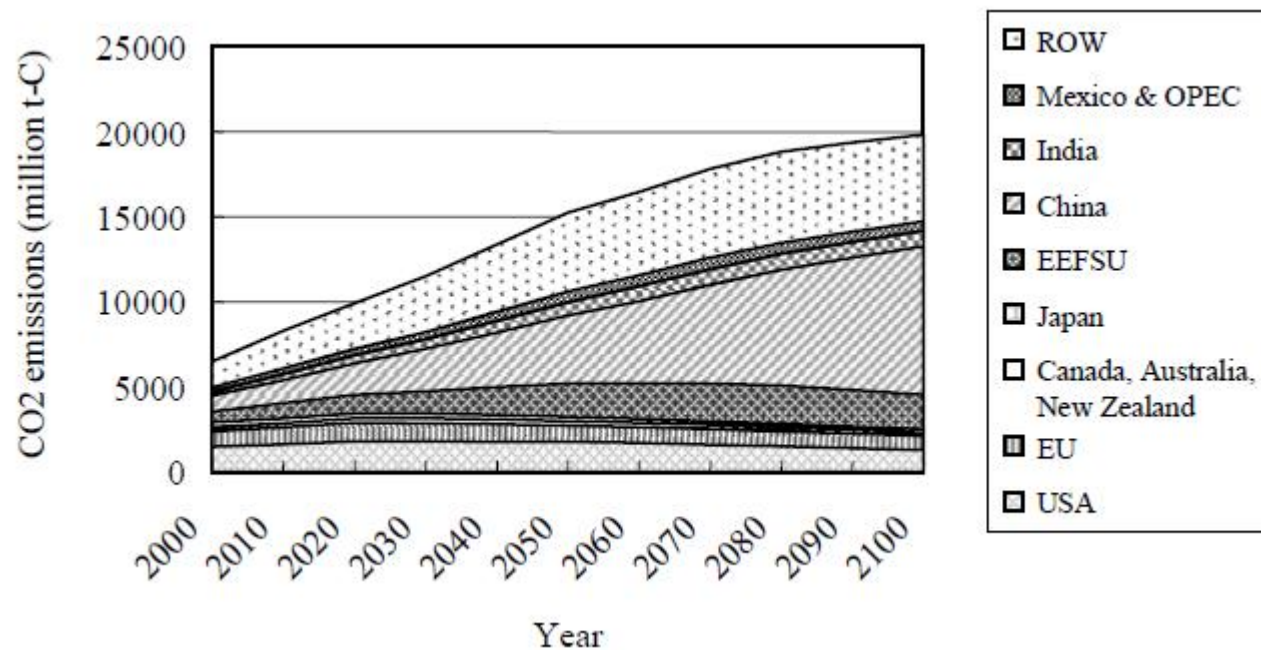
Source： Cost Analysis of Mitigation Policies , Kainuma ,et al, in , Climate Policy Analysis 2003