



**Integrated effort for INDC:
Japan's comprehensive, continuous and
systematic support for science-based climate
policy development in Asia**

**The 3rd Annual Meeting of Low Carbon Asia Research Network
November 2014, Bogor**

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Institute for Global Environmental Strategies (IGES)**

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IPCC AR5: 2 ton CO₂/capita world in 2050

Asian position

Scientific bases for low carbon development policy

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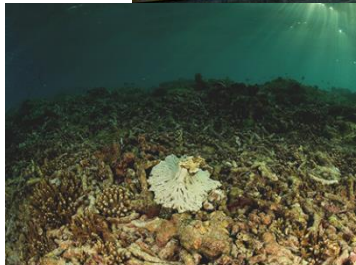
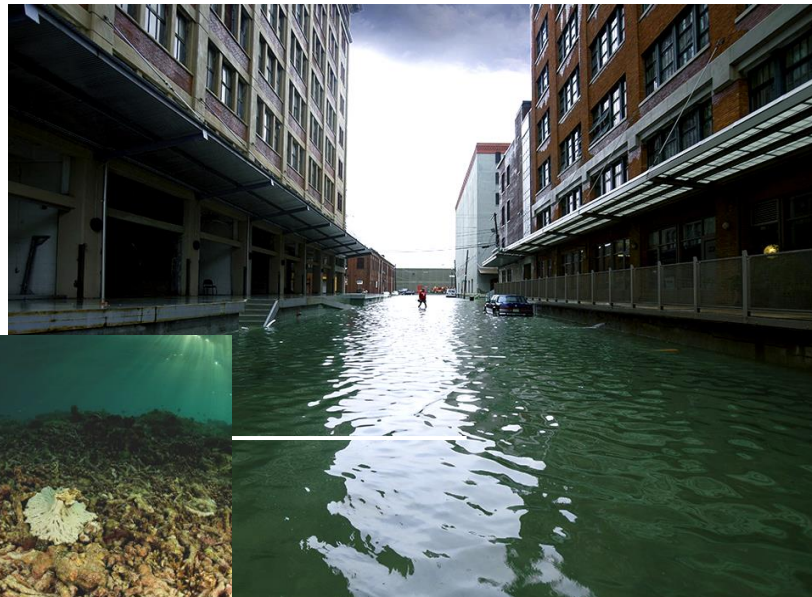
Climate change impacts on human life everywhere and serious




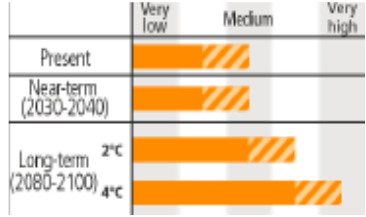
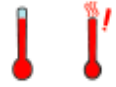
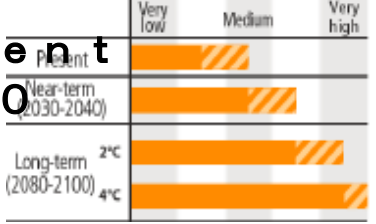
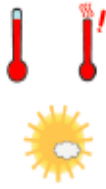
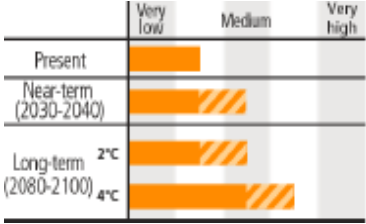
気候変化は世界のあらゆる場所で人々の生活に深刻な損害を与える

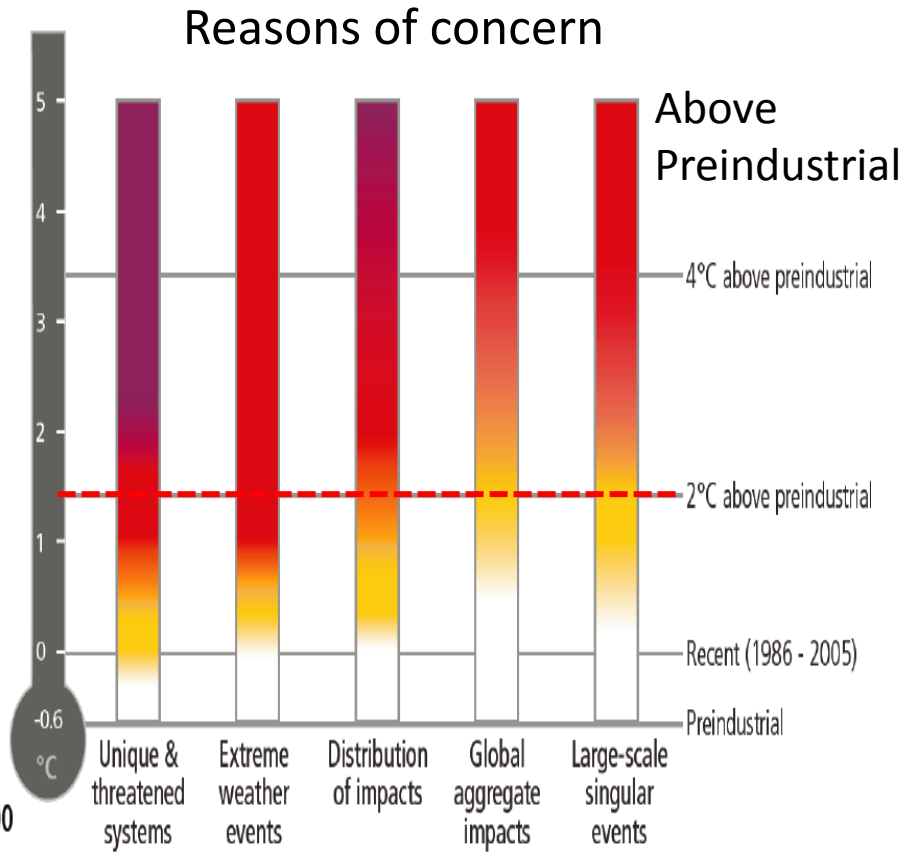
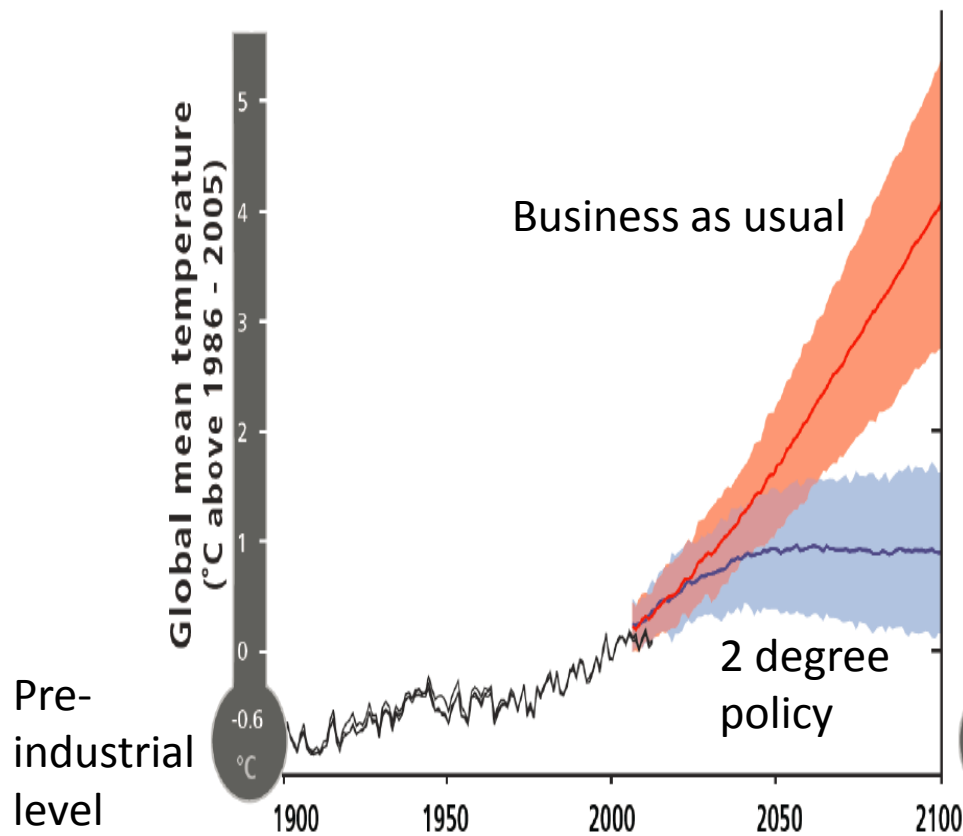
RISKS OF CLIMATE CHANGE

INCREASE WITH CONTINUED HIGH EMISSIONS



Major Climate change impacts to Asia and adaptability

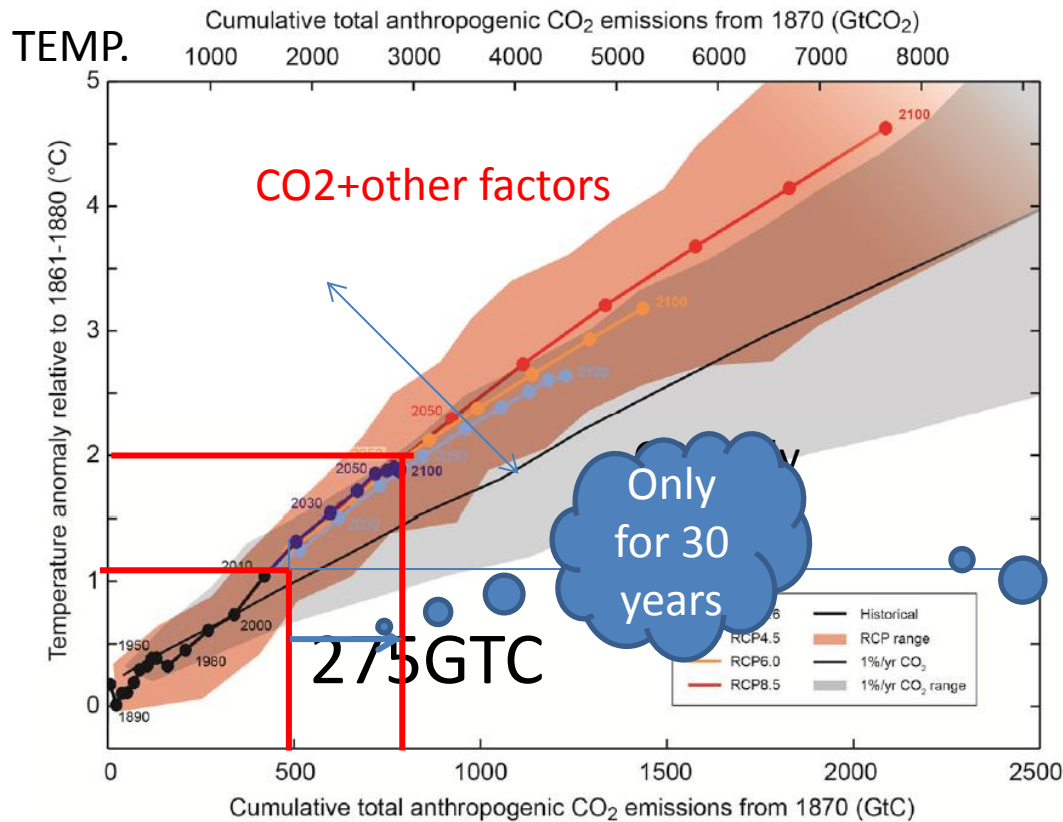
Key risk	Adaptation issues and prospects	Climatic drivers	Supporting ch. Sections	Time frame	Risk for current and high adaptation
主要リスク	適応 이슈と展望	気候的要因	参照章・節	時間軸	現行及び高次適応のリスク
Asia アジア					
<p>Increased flooding leading to widespread damage to infrastructure and settlements in Asia (medium confidence)</p> <p>Flood</p> <p>アジアにおける増加する洪水とインフラや居住に対する広範な被害(確信度が中程度)</p>	<ul style="list-style-type: none"> - Exposure reduction via effective land-use planning, selective relocation, and structural measure - Reduction in the vulnerability of lifeline infrastructure and services (e.g., water, energy, waste management, food, biomass, mobility, local ecosystems, telecommunications) - Assistance to vulnerable sectors and households <p>・効果的な土地利用計画、選択的移住、かつ構造的手段による影響被害の軽減 ・ライフラインインフラとサービスの脆弱性の軽減(例、水、エネルギー、廃棄物管理、食料、バイオマス、移動性、ローカルなエコシステム、通信) ・脆弱なセクターや家庭(世帯)への支援</p>		24.4		<p>Impacts increases as temp. rises</p> <p>Adaptability is limited</p>
<p>Increased risk of heat-related mortality (high confidence)</p> <p>Heat shock</p> <p>増加する熱(暑い気候)に関連する死亡(確信度が高い)</p>	<ul style="list-style-type: none"> - Heat health warning systems - Urban planning to reduce heat islands - Improvement of the built environment <p>・熱波に関する健康警告システム ・ヒートアイランド現象を軽減するための都市計画 ・建築環境の改善</p>		24.4	<p>Present - 2040</p> 	
<p>Increased risk of drought-related water and food shortage causing malnutrition (high confidence)</p> <p>Malnutrition</p> <p>栄養失調の原因となる干ばつによる水と食料の不足の増大(確信度が高い)</p>	<ul style="list-style-type: none"> - Disaster preparedness including early-warning systems and local response strategies <p>・早期警告システムとローカルな対応戦略を含む災害準備</p>		24.4		



2 degree above preindustrial level : Internationally agreed target of risk aversion

Zero emission is only one ultimate solution to stabilize climate

linear relation between cumulative GHG emission & temperature rise



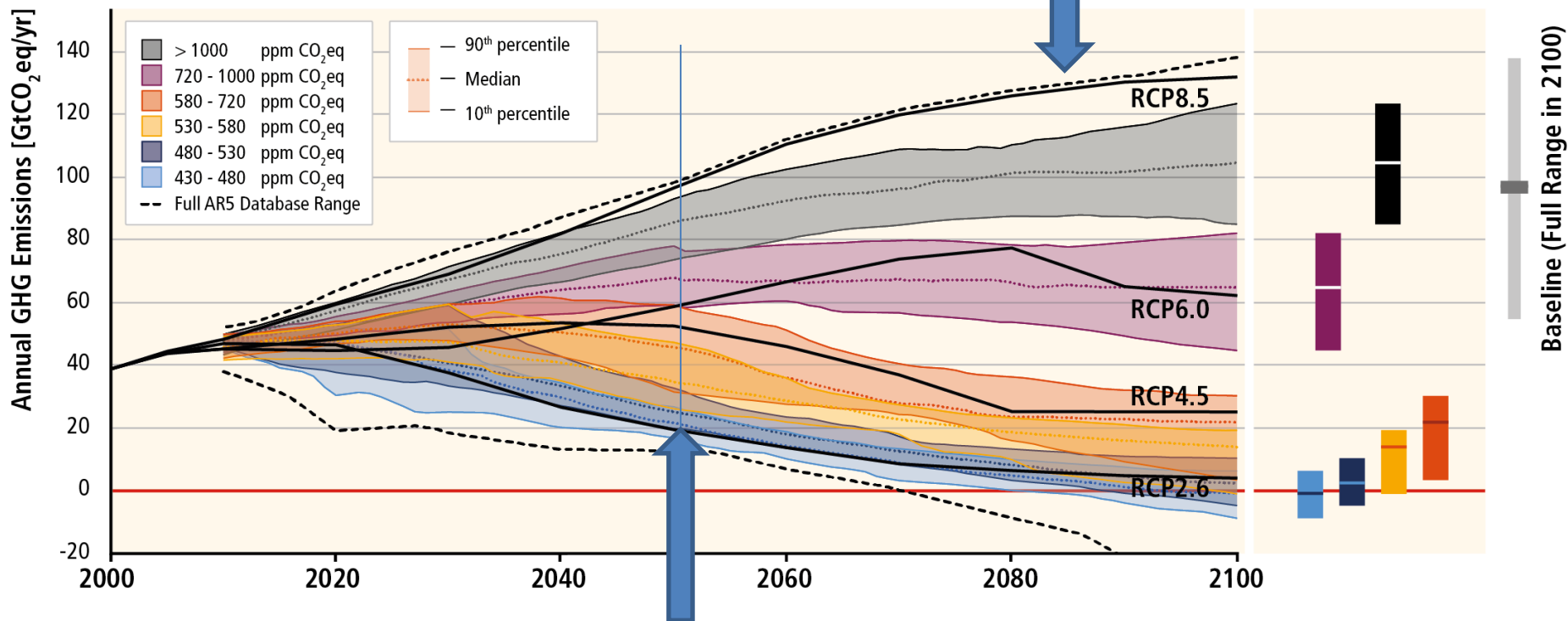
- 2°C ⇒ 790 GtC
- 515GtC emitted already
- only 275GtC remained
- 2013 emission= 9.9GtC

Cumulative total anthropogenic CO₂ emission from 1870 (GtCO₂)

Global target: Halving of current emission by 2050

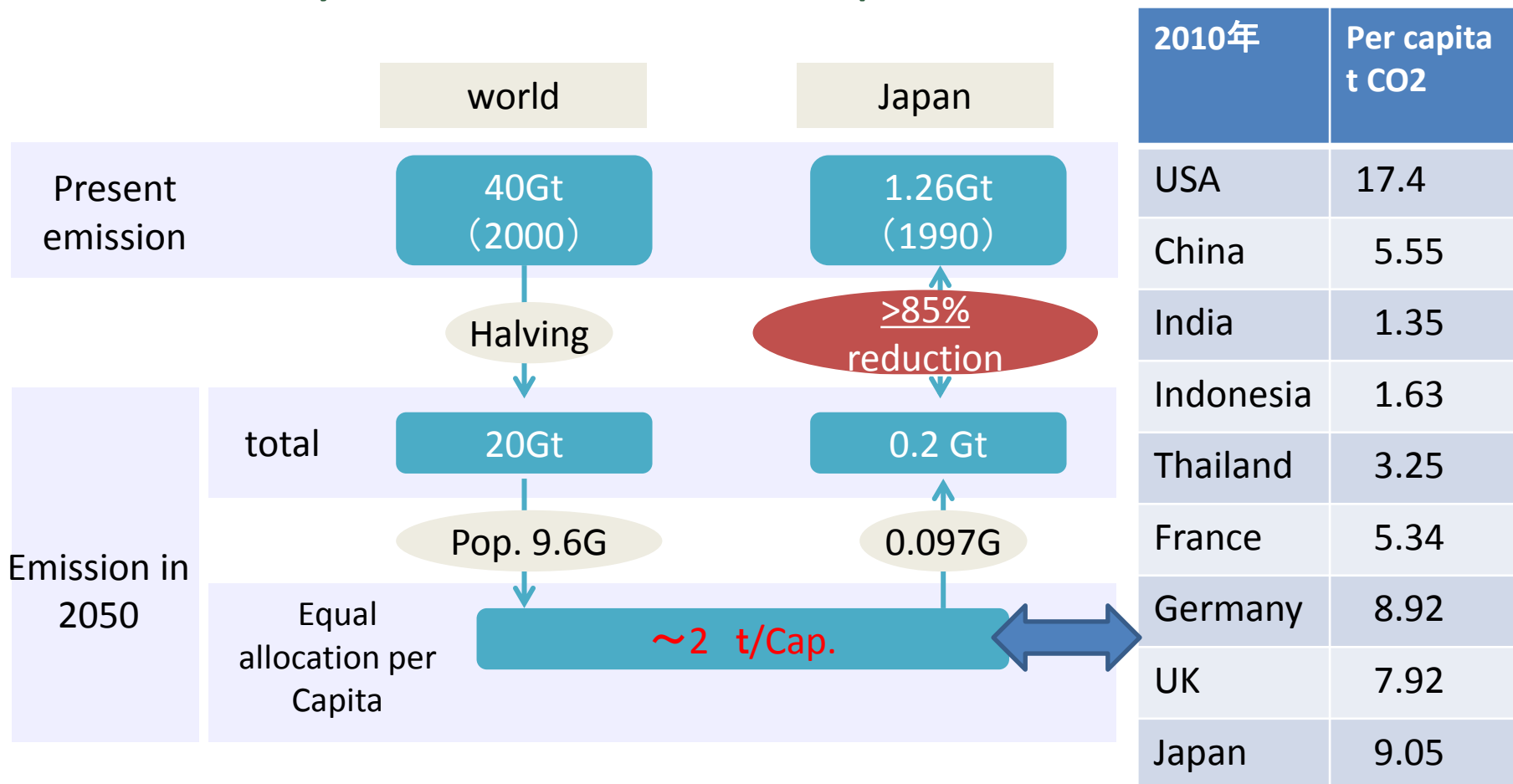
Without more mitigation, global mean surface temperature might increase by 3.7° to 4.8°C over the 21st century.

GHG Emission Pathways 2000-2100: All AR5 Scenarios



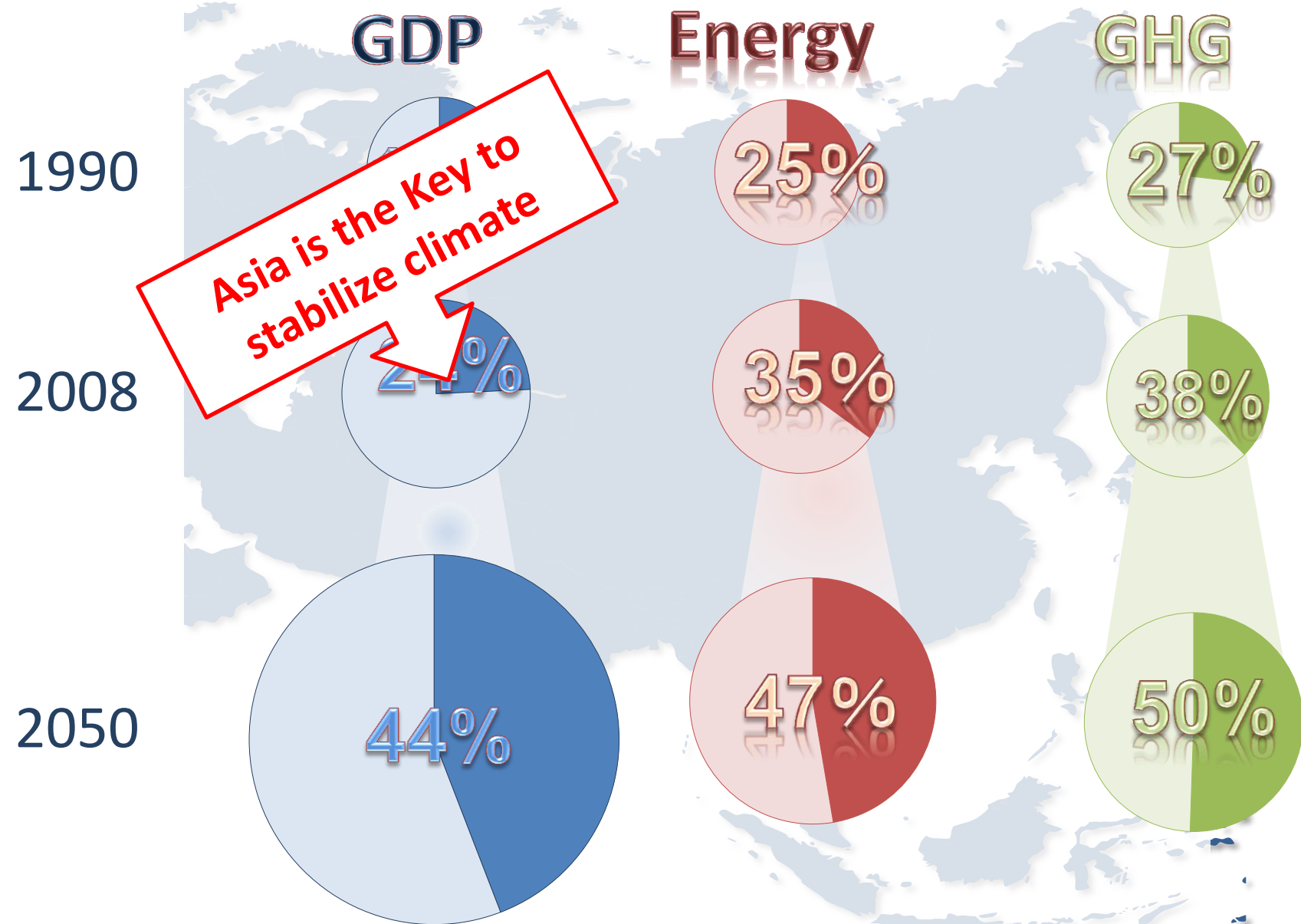
To avoid 2 degree rise, path of passing 50% reduction from now in 2050 is feasible and reasonable .

2050 halving from now: 2ton/Capita World
 Japan: more than 80% reduction (base year 1990)
 Asia: already more than 2ton/ Capita



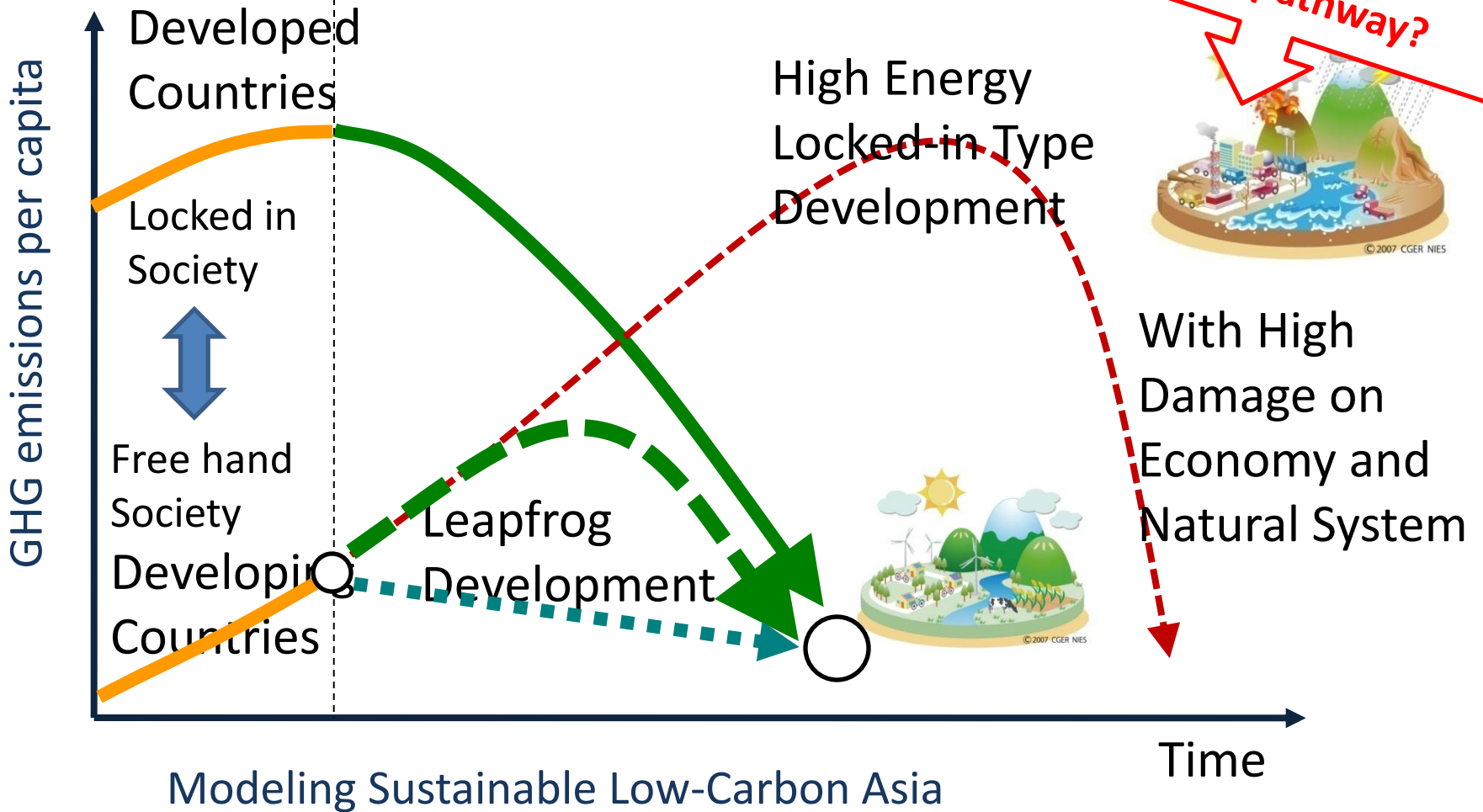
※世界の人口は国連「World Population Prospects, the 2012 Revision」より、日本の人口は社人研「日本の将来推計人口（平成24年1月推計）」より

Growing importance of actions towards low-carbon development in Asia



LCS scenario in Asia

道筋を選
**Challenge of Asia
 Which pathway?**

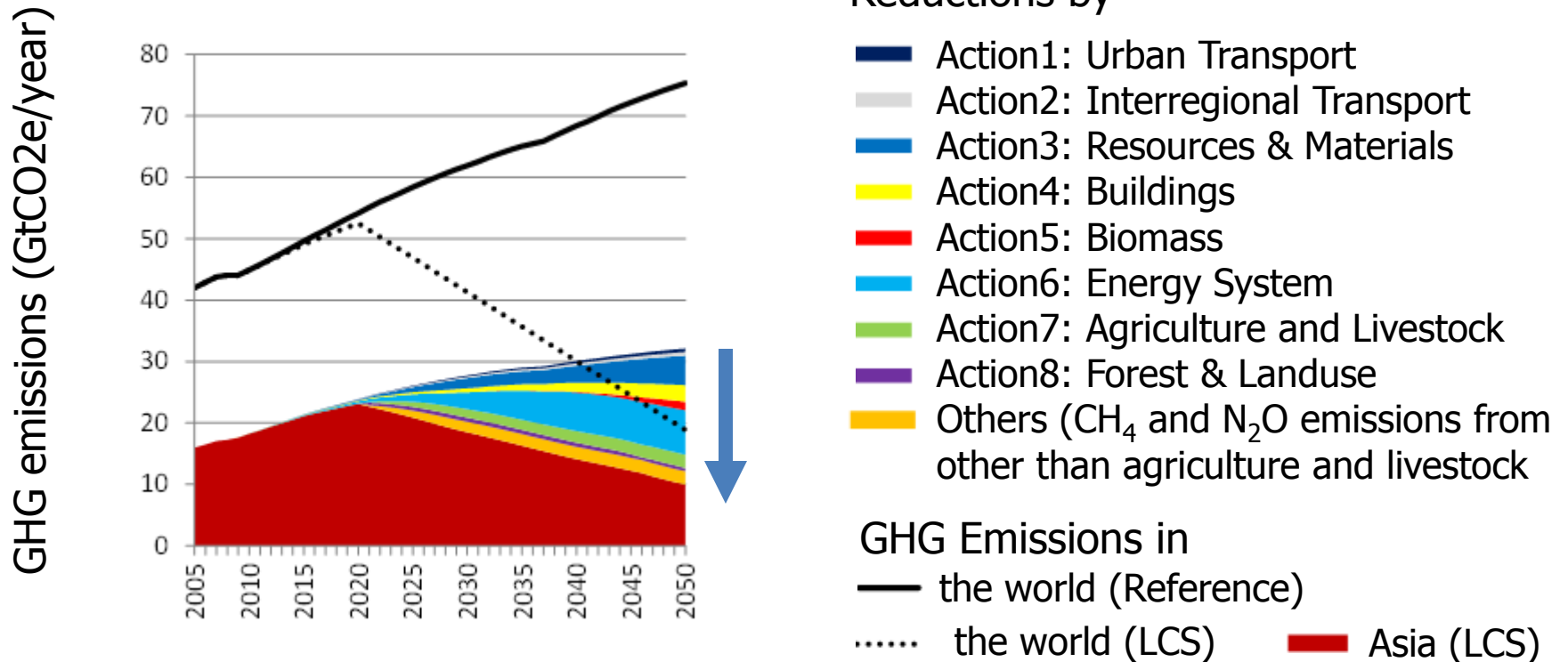


Modeling Sustainable Low-Carbon Asia

“Asian Low-Carbon Society Scenario Development Study” FY2009-2013, funded by Global Environmental Research Program, MOEJ

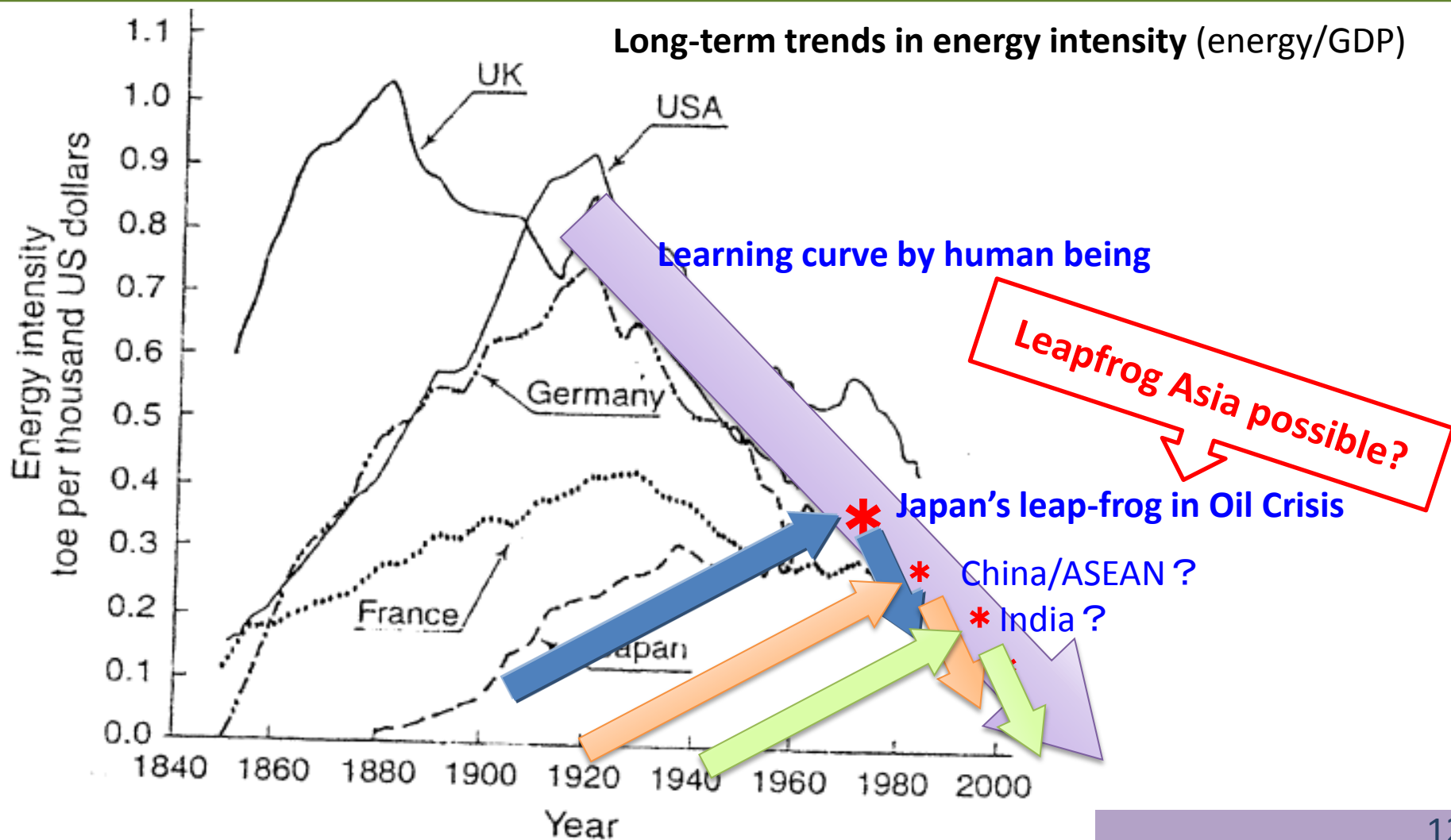
There is **potential to reduce GHG emissions by 69%** compared to the reference case in Asia

- 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.



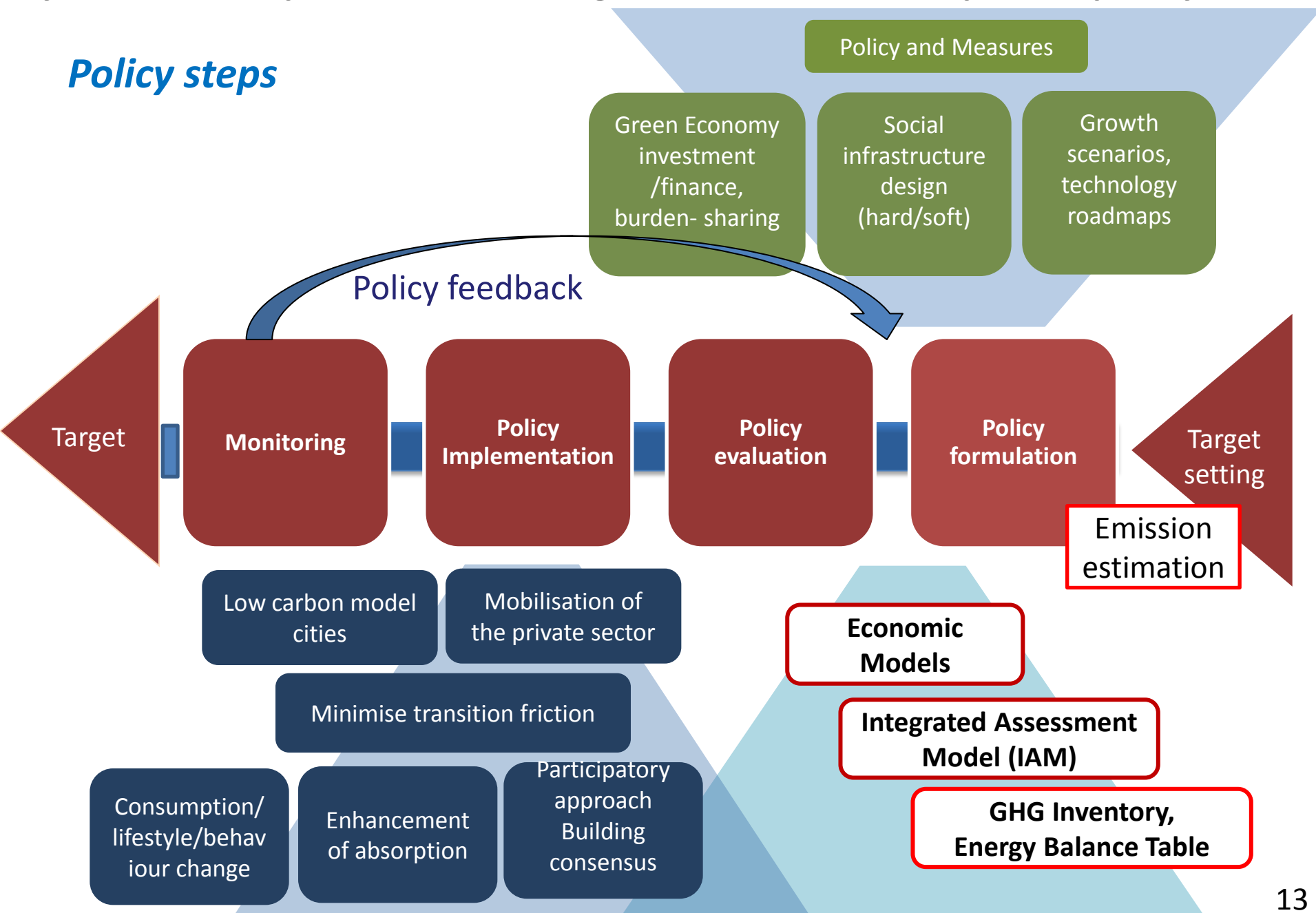
Calculated by Asia Integrated Assessment Model (AIM/NIES)

気候変動をテコとしたアジアの一足飛び発展は可能か Opportunities for Asia: Leveraged by climate change

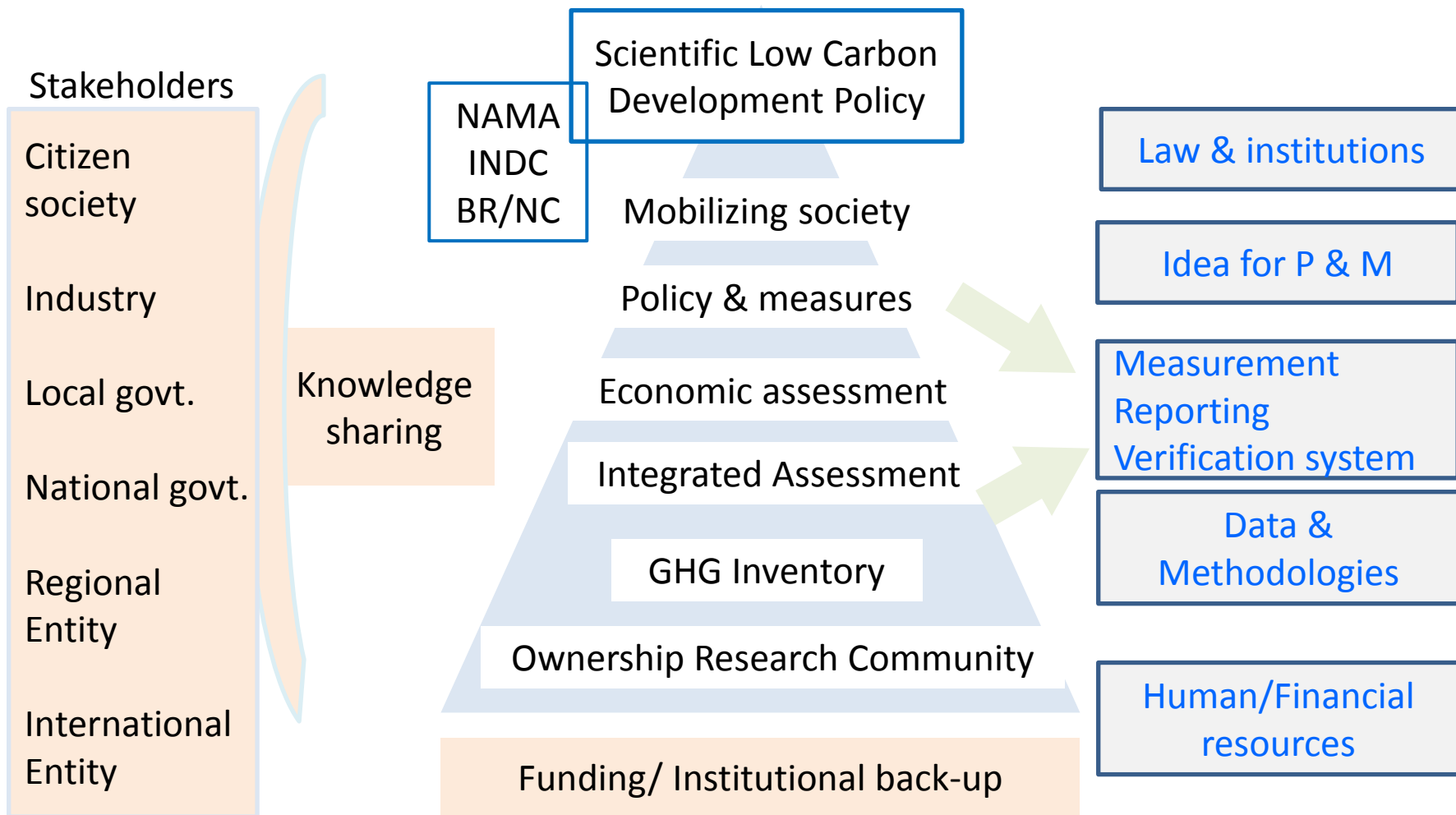


Systematic Steps for formulating low-carbon development policy

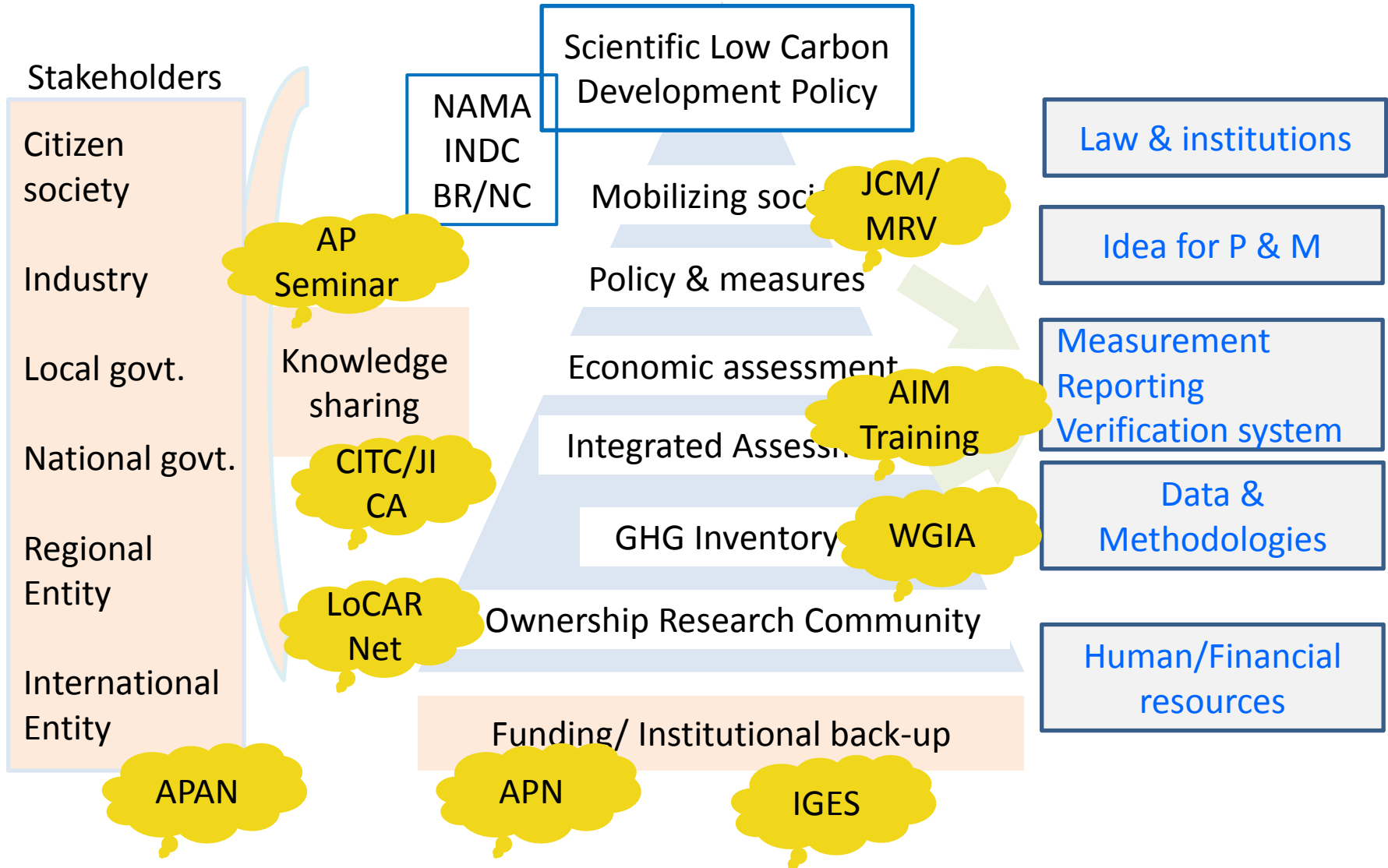
Policy steps



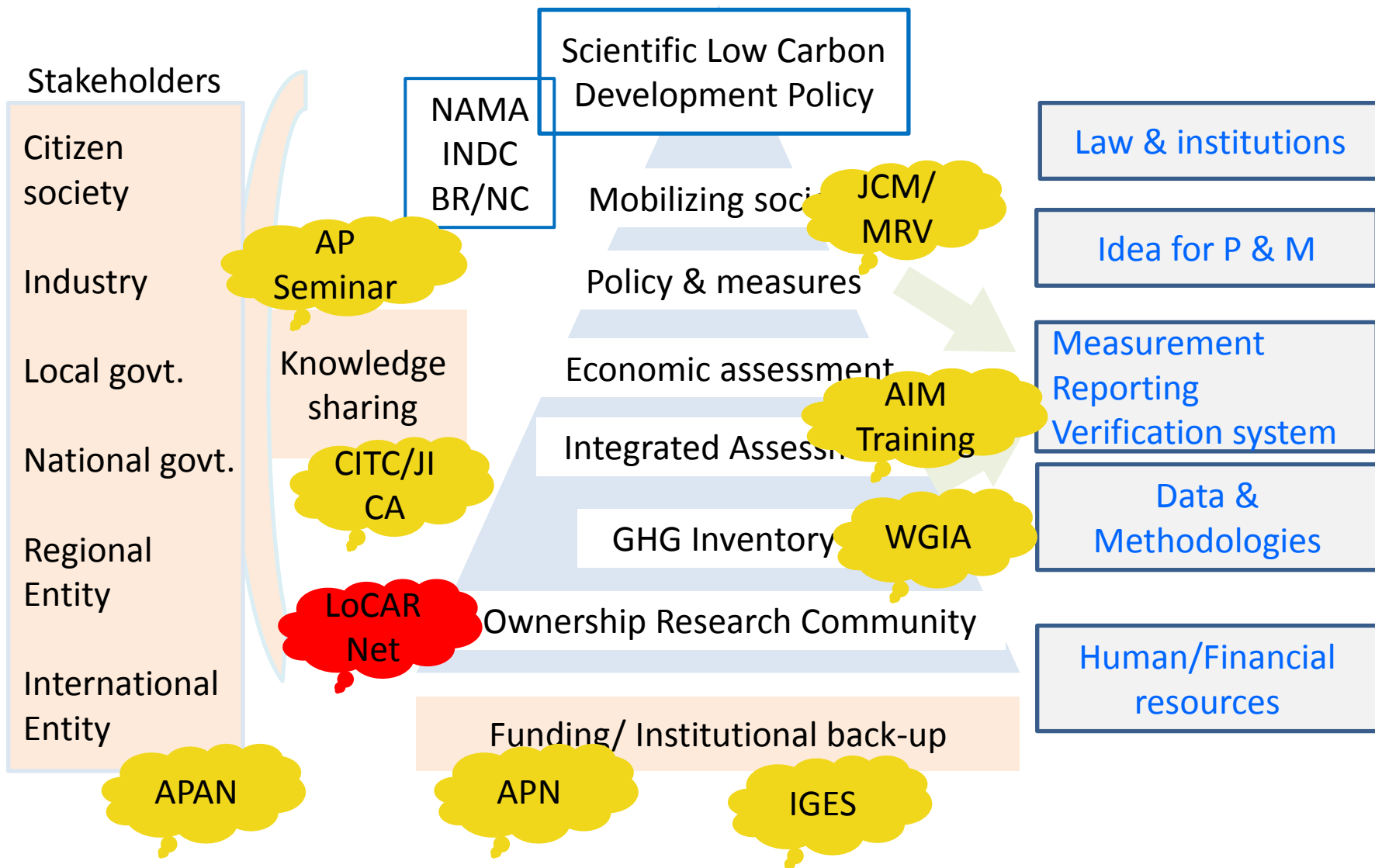
Elements Supporting Scientific Low Carbon Development Policy & Intended Nationally Determined Contribution: INDC



Elements Supporting Scientific Low Carbon Development Policy & Intended Nationally Determined Contribution: INDC



Elements Supporting Scientific Low Carbon Development Policy & Intended Nationally Determined Contribution: INDC



Japan's comprehensive, continuous, and systematic support for science-based climate policy development in Asia

Objectives	Activities	Contents	Est. since		outputs
Knowledge Sharing	Tokyo Conference on the Global Environment and Human Response toward Sustainable Development (UNEP and Japanese Govt.)	Advisory meeting on global climate change	1989		
	Asia-Pacific Seminar on Climate Change (AP Seminar)	- Knowledge sharing on IPCC results and UNFCCC progress - Support for developing plans addressing CC	1991	- 23rd meeting in 2014 - Rotating presidency	Approx. 800 participants in total
- Formulation of basic grounds in research - Common research funds	The Asia-Pacific Network for Global Change Research (APN)	- Promoting joint research and capacity development in Asia - Low carbon initiatives - Climate Adaptation Framework	1996	Funds: 400 million yen (includes 120 million yen for new CAF projects in 2014)	Approx. 225 projects
	- Institute for Global Environmental Strategies (IGES) - Activities as Regional/International Environment Research organisation at the initiative of PM in Japan	(approx. 100 researchers) IPCC /NGGI/TSU	1998 1999	Constant research Global standard	White Paper, ISAP (annual conference) Many Joint researches in Asia

Japan's comprehensive, continuous, and systematic support for science-based climate policy development in Asia – 2 (Cont'd)

Objectives	Activities	Contents	Est. since		outputs
Capacity development in forming the basis of climate policy	Workshop on Greenhouse Gas Inventories in Asia (WGIA)	<ul style="list-style-type: none"> - Improving accuracy of GHG inventories in Asia - Sharing knowledge and experience amongst researchers and policymakers - Promoting regional cooperation 	2003	<ul style="list-style-type: none"> - Annual meeting - 12 times in total 	Approx. 900 participants in total
	Asian Pacific Integrated Model (AIM) Int'l WS / Training workshop	<ul style="list-style-type: none"> - Training on integrated models for developing climate mitigation policies - Organised by NIES and Kyoto Univ. 	1995 / 1997	19 times (annually) / irregular, more than 10 times	Approx. 500+ participants in total / Approx. 100+ in total
	Asia Pacific Adaptation Network (APAN)	<ul style="list-style-type: none"> - Asia-Pacific Climate Change Adaptation Forum - Sub regional/thematic meetings by APAN nodes 	2009	- Biennial meeting	Approx. 1,850 participants (1 st -3 rd forum)
	Low Carbon Asia Research Network (LoCARNet)	Formulating research community, Policy Dialogues between researchers and policymakers on climate policy, knowledge-sharing	2012	<ul style="list-style-type: none"> - 3rd annual meeting in 2014 - 20+ WSs 	Approx. 250 participants ~800 part
Climate Policy and technical training	Support for the Climate Change International Technical and Training Center (CITC Thailand)	<ul style="list-style-type: none"> - Training on climate policies for policymakers in central/local govt., practitioners, businesses mainly in ASEAN countries - TGO established CITC by receiving support from JICA 	2014	Starting from Oct. 2014	

What is LoCARNet?

- An open network of researchers, research organisations, as well as like-minded relevant stakeholders that facilitates the formulation and implementation of science-based policies for low-carbon development in Asia.
- Proposed at **ASEAN+3 EMM** in October 2011
- Officially launched at **“East Asia Low Carbon Growth Partnership Dialogue”** in April 2012
- Three major activities: policy dialogue, knowledge sharing, and capacity development





Junichi FUJINO
Japan



Nguyn Tung Lam
Vietnam



Rizaldi BOER
Indonesia



Ho Chin SIONG
Malaysia



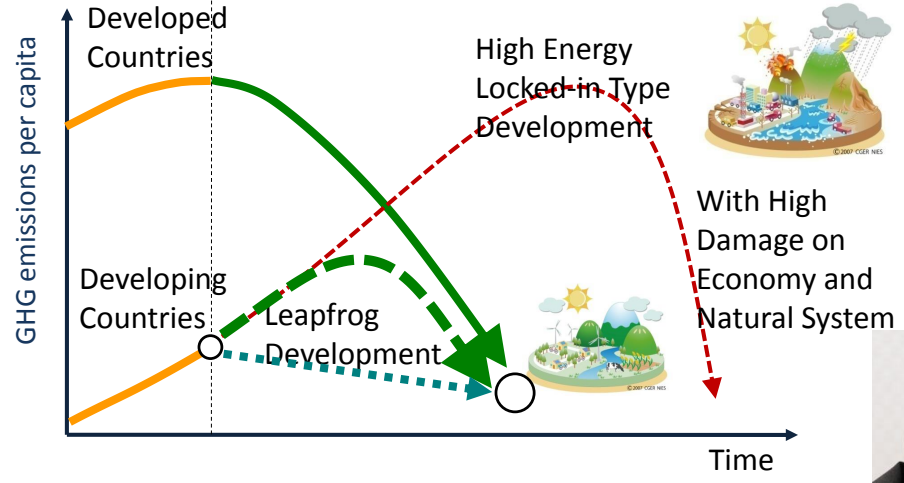
Priyadarshi SHUKLA
India



Mikiko KAIMUMA
Japan



Bundit LIMMEECHOKCHAI
Thailand



Srintornthep Towprayoon
KANANURAK
Thailand



Shuzo Nishioka
Japan
Secretariat



Jiang KEJUN
China



LoCARNet Workshops and consultations in Asian countries

Indonesia

Policy-Research Dialogues

Low Emission Development Scenarios (LEDs) of Energy Sector: Preliminary Result of Asia-Pacific Integrated Modeling (AIM) exercise (June 2012)

- Indonesia Workshop: Research Cooperation on "Development of Low-Carbon Strategies" (Feb. 2013)



Cambodia

Cambodia Workshop: A Systematic and Quantitative Design of Low Carbon Development Plan for Cambodia (April 2014)



Vietnam

Vietnam Workshop: Low Carbon Society in Vietnam (April 2013)



Thailand

- LoCARNet 1st Annual Mtg. (Oct. 2012)
- Development of Asia Low-Carbon Strategy and Roadmap 1st Kick off Meeting (Oct. 2012)



Malaysia

Int'l workshops in Iskandar, Malaysia (2012-2013)

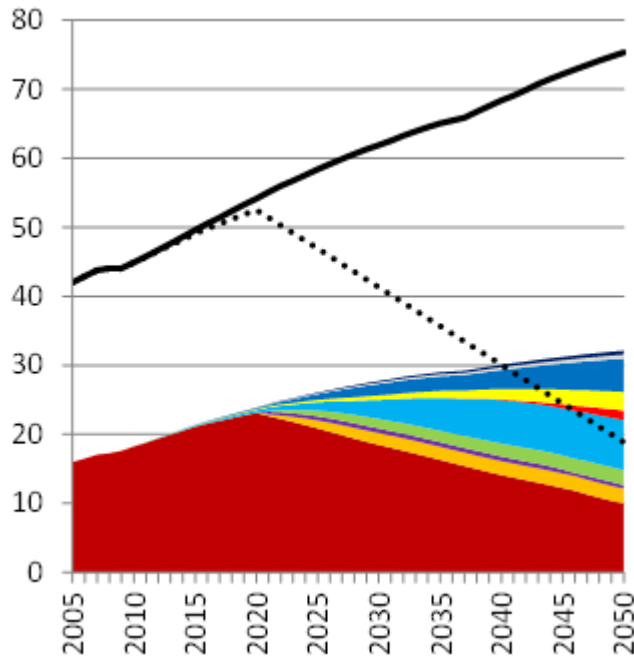


There is potential to reduce GHG emissions by 69% compared to the reference scenario in Asia

- The global emissions will become 52 GtCO₂e/year in 2020 compared to the 2005 level and emissions in Asia will be 23 GtCO₂e/year in 2020 in the reference scenario.
- It is feasible to reduce GHG emissions in Asia by 69% by 2050 through ten actions and Others (CH₄ and N₂O emissions from agriculture and livestock) appropriately compared to the reference scenario in 2050.

Policy maker: Can I trust this for of making national policy of my country?

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)

Asian Low Carbon Development Scenario Making and Capacity Building Activity Since 1991



**AIM Training WS since 1991
for integrated policy making**



Asian Modeling Meeting at Tsukuba on 17-18
September 2009



1st AIM International Workshop on
1-2 February, 1996

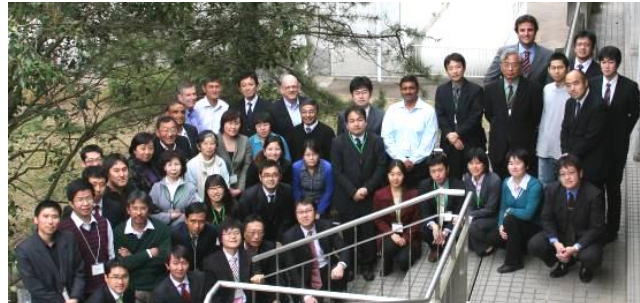
15th AIM International Workshop on 20-22
February 2010



17th AIM International Workshop, 17-19, February
2012



AIM Training Workshop on 27-31 October
2008



14th AIM International Workshop on 14-15 February
2009



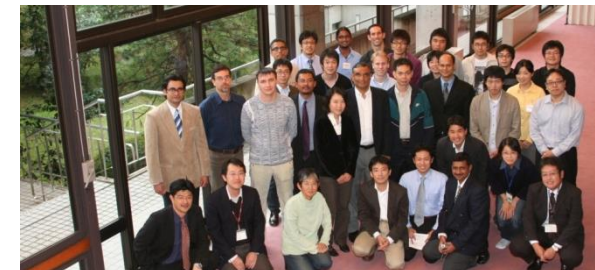
16th AIM International Workshop on 19-21 February
2011



AIM Training Workshop on 16-20 October 2006



AIM Training Workshop on 2-14
August 2010

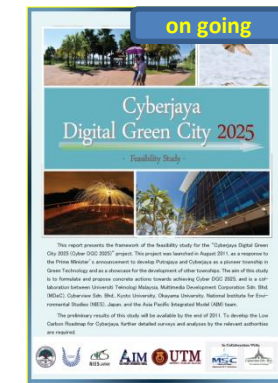
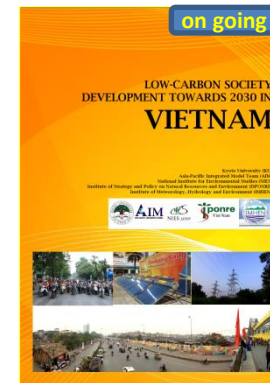
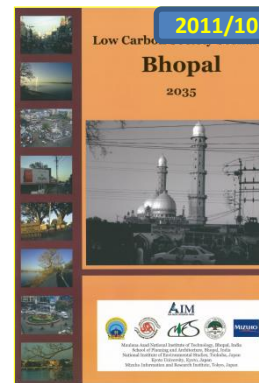
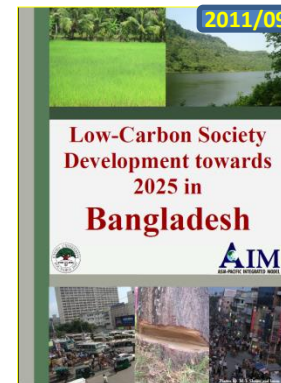
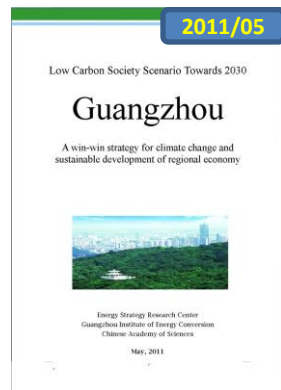
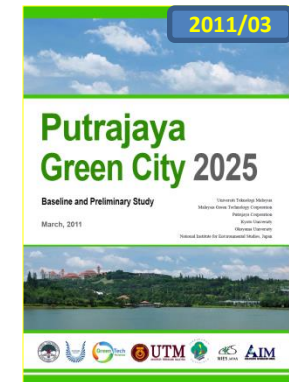
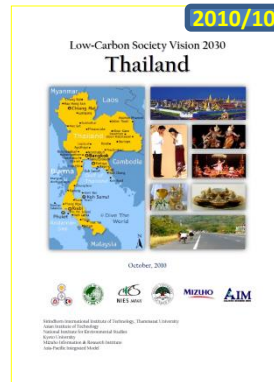
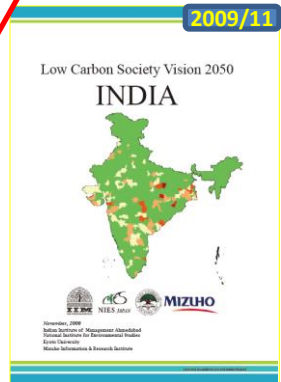
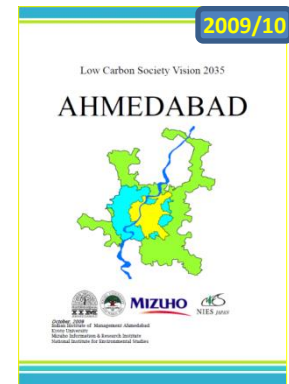
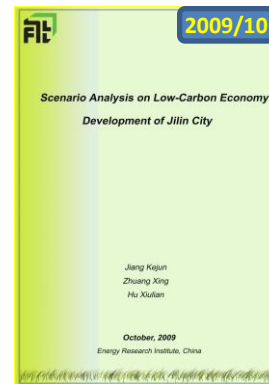
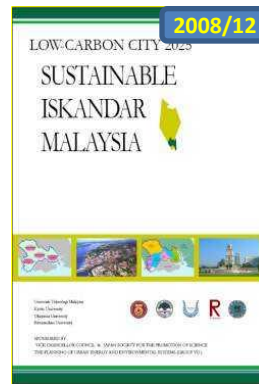


AIM Training Workshop on 22-26 October 2007

Brochures introducing national and regional specific LCD studies

Communication and feedbacks of LCD study to real world

Low Carbon National/City Scenarios applying Integrated Assessment Model (AIM)



LoCARNet - Way Forwards

- **Strengthening research capacity** towards involvement in scientific policy making, as well as facilitating contribution in policy formulation.
- To “make it happen” towards realising low-carbon societies, **collaborating** not only researchers and policymakers, but also other stakeholders concerned, such as practitioners and business, and expanding the network.
- Participating in UNFCCC/COP21 process to deliver impacts from Asian low-carbon research community, by introducing LCD actions and good practices in Asia , considering the growing importance of Asia in terms of GHG reduction potential and challenges and opportunities for LCD in Asia.
- Becoming a **knowledge-tank on LCD** plans and strategies for ASEAN countries.



Thank you very much for your attention!

LCS-RNet/LoCARNet Secretariat

<http://lcs-rnet.org/index.html>



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