

Asian Modeling Exercise

Kate Calvin
September 16, 2009
Tsukuba, Japan



Pacific Northwest
NATIONAL LABORATORY

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Acknowledgements

- ▶ Our thanks to the following organizations for their funding:



- ▶ This is an open process and we welcome funding from other interested parties.



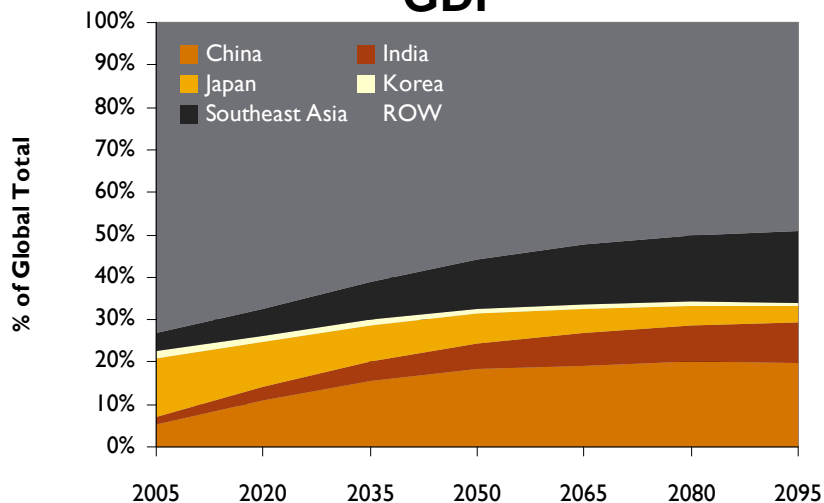
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Goals of the Exercise

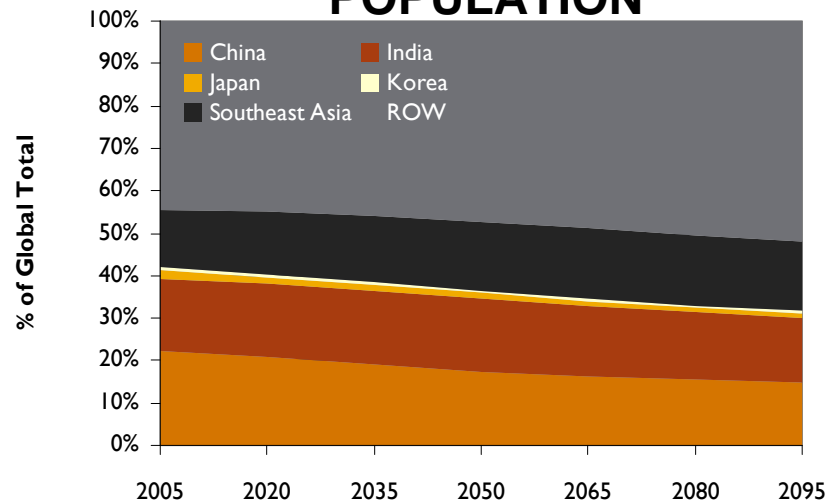
- ▶ **Objective:** to better articulate the role of Asia in addressing climate change.
- ▶ **Means:** To bring together global modelers that commonly participate in efforts to explore international policy architectures with regional modelers and experts with Asia-specific knowledge, understanding, data, and analysis
 - A coordinated modeling exercise that attempts to link these communities to provide more effective modeling and analysis of Asia within a global context.

Motivation: Asia's Role

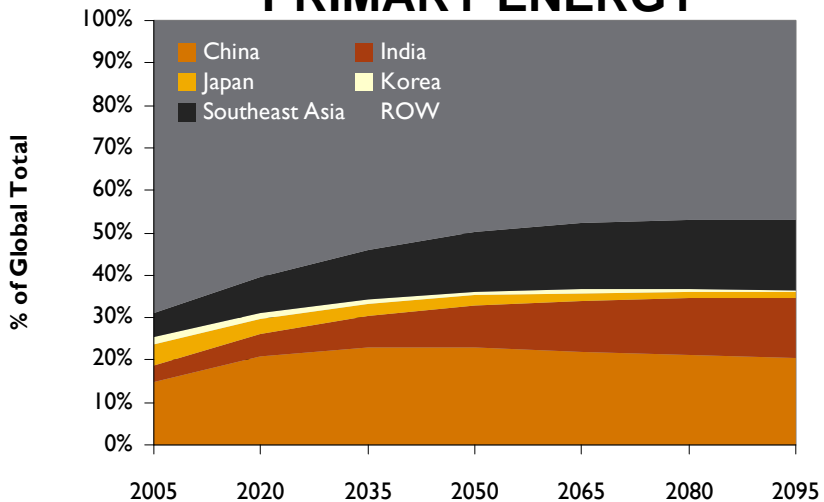
GDP



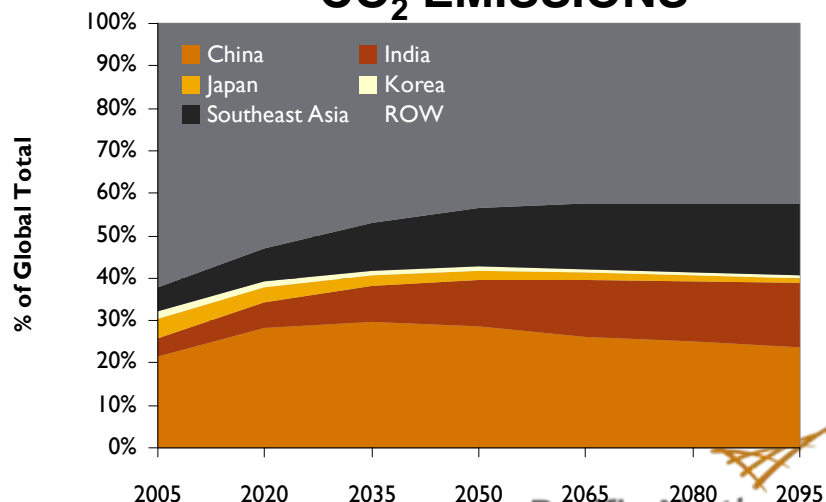
POPULATION



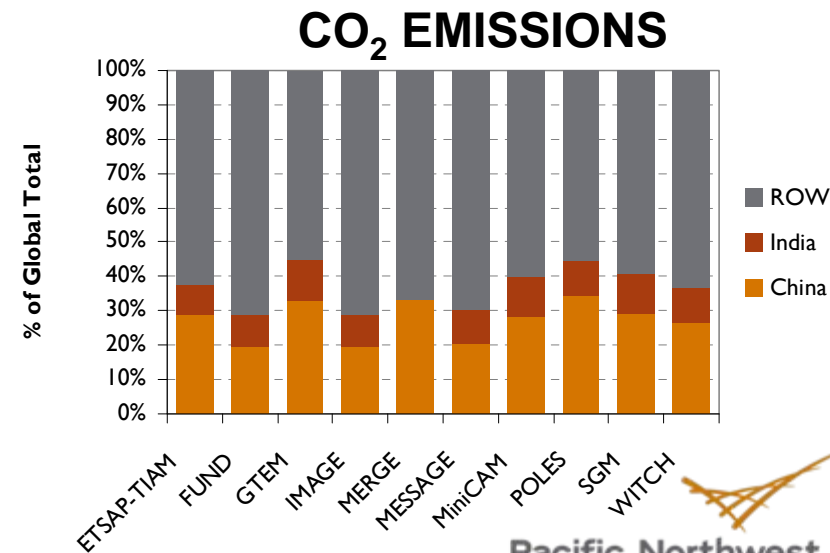
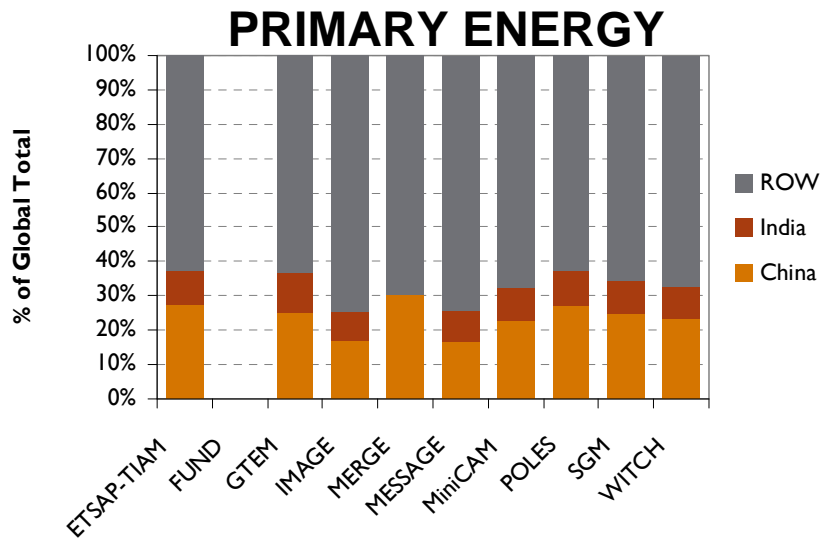
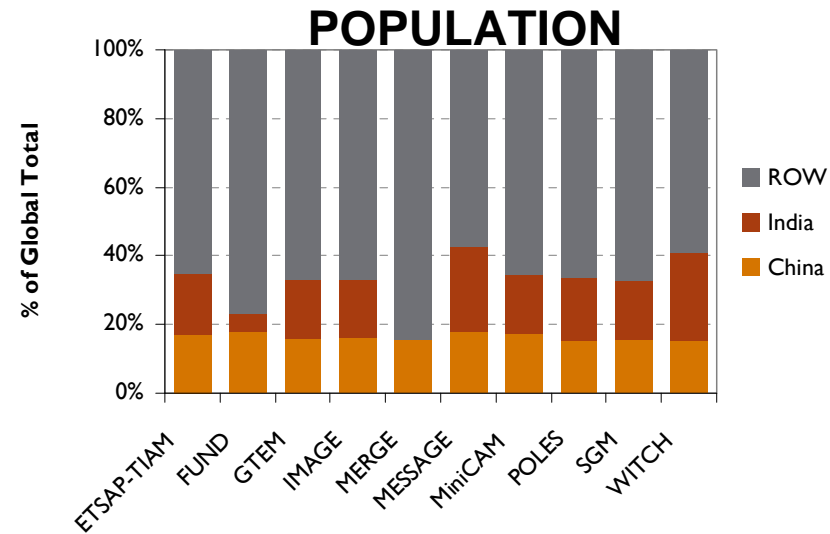
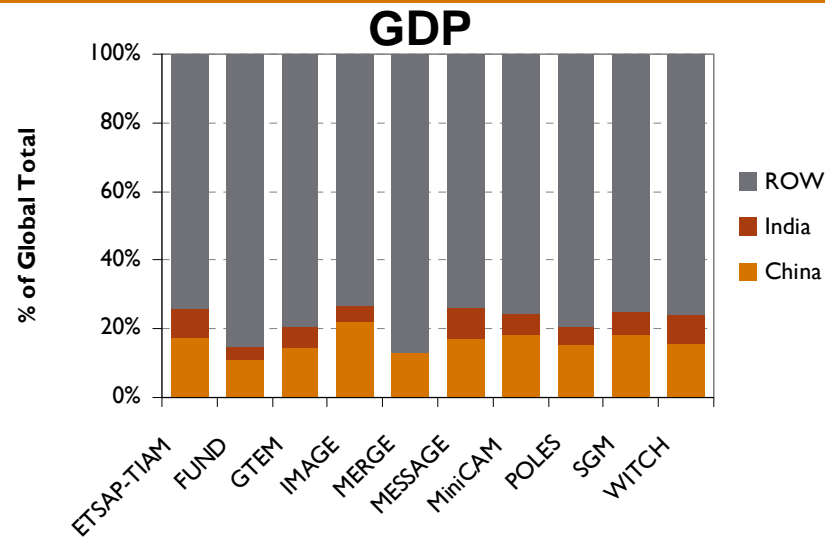
PRIMARY ENERGY



CO₂ EMISSIONS



Motivation: China & India's Role in 2050



Stanford EMF-like exercise



Schedule

- ▶ First Meeting:
 - When: September 17-18, 2009
 - Where: Tsukuba, Japan
 - Objective:
 - Review Existing Asian Scenarios Work
 - Plan a New Scenario Exercise

- ▶ 2 to 3 subsequent meetings, every 6 months
 - 2nd Meeting: March 2010
 - 3rd Meeting: September 2010

- ▶ Final Product:
 - Special Issue of a Journal (2011)

1st Meeting's Agenda

AGENDA Day 1: September 17, 2009

8:30 to 8:40	Welcome – Mikiko Kainuma
8:40 to 8:45	Introduction – Jae Edmonds
8:45 to 9:20	Overview – Leon Clarke

OVERVIEW OF MODELING CAPABILITY—THE GLOBAL MODELS

Chair: Leon Clarke

9:20 to 9:40	Kate Calvin: PNNL
9:40 to 10:00	Geoff Blanford: EPRI
10:00 to 10:20	Keywan Riahi: IIASA

10:20 to 10:40	COFFEE BREAK
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OVERVIEW OF MODELING CAPABILITY—THE REGIONAL MODELS

Chair: Jae Edmonds

10:40 to 11:00	Ram Shrestha: Asian Institute of Technology
11:00 to 11:20	Chin Siong Ho: U. Technology Malaysia
11:20 to 11:40	Jiang Kejun: China Energy Research Institute
11:40 to NOON	Yong Gun Kim: Korea Environment Institute

LUNCH

NOON to 13:00	Jiang Kejun: What Do Asian Policy Makers Want To Know: China
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OVERVIEW OF MODELING CAPABILITY—THE GLOBAL MODELS

Chair: Geoff Blanford

13:00 to 13:20	Valentina Bosetti: FEEM
13:20 to 13:40	Elmar Kriegler: PIK
13:40 to 14:00	Peter Russ: EU
14:00 to 14:20	Junichi Fujino: NIES
14:20 to 14:40	Tom Kram: PBL
14:40 to 15:00	Dominique van der Mensbrugge: WB
15:00 to 15:20	Atsushi Kurosawa: JIEA

15:20 to 15:40	COFFEE BREAK
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OVERVIEW OF MODELING CAPABILITY—THE REGIONAL MODELS

Chair: Stephanie Walldoff

15:40 to 16:00	Suduk Kim: AJOU University
16:00 to 16:20	Vaibhav Chaturvedi or P.R. Shukla: IIAM
16:20 to 16:40	Zhang Xiliang: Tsinghua University
16:40 to 17:00	Shuichi Ashina: NIES

OPTIONS FOR THE ASIAN MODELING EXERCISE

Chair: Leon Clarke

17:00 to 17:30	OPEN DISCUSSION
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► Day 1: 16 Presentations, 20 Minutes Each

- ***We need to be very strict about time management***
- Pre-defined presentation template
 - 4 slides describing the model
 - 1 slide on Asian baselines
 - 3 slides on Asian scenarios

► Day 2:

- Focus on the plan going forward

Participants

- ▶ 46 People are Attending the First Meeting
 - Representing China, Europe, India, Indonesia, Japan, Korea, Malaysia, Thailand, USA

- ▶ 10 Global Modeling Teams:
 - EPRI, EU, FEEM, IIASA, JGCRI, JIEA, NIES, PBL, PIK, World Bank

- ▶ 6 Regional Modeling Teams:
 - Asian Institute of Technology, China Energy Research Institute, Tsinghua University, Korea Environment Institute, AJOU University, IIAM

Possible Topics

- ▶ **Growth and Development Paths:** The effect of different population and economic growth assumptions in Asian regions
- ▶ **International Climate Targets:** The implications of varying international climate policies on Asian regions
- ▶ **Non-Cap-and-Trade Climate Policies:** The impact of various policy based commitments (e.g., RPS, energy efficiency standards, CAFE standards) on Asian regions
- ▶ **Non-Climate Policies:** The impact of various non-climate policies (e.g., sulfur standards, BC policies) on Asian regions
- ▶ **Technology:** The effect of various technology assumptions (different technology availability, different costs) on mitigation in Asian regions
- ▶ **Land-use Policies:** The impact of land-use policies (e.g., offsets, REDD) on agriculture, land-use, and land-use change emissions in Asian regions.
- ▶ **Imperfect Cooperation on Climate Policy:** The degree of emissions leakage in Asian regions as a result of differentiated climate policies around the world.
- ▶ **Climate Policy on Energy Security and International Trade:** The implications of climate policy on energy security and international trade within Asia, and between Asia and the rest of the world.

EXTRA SLIDES

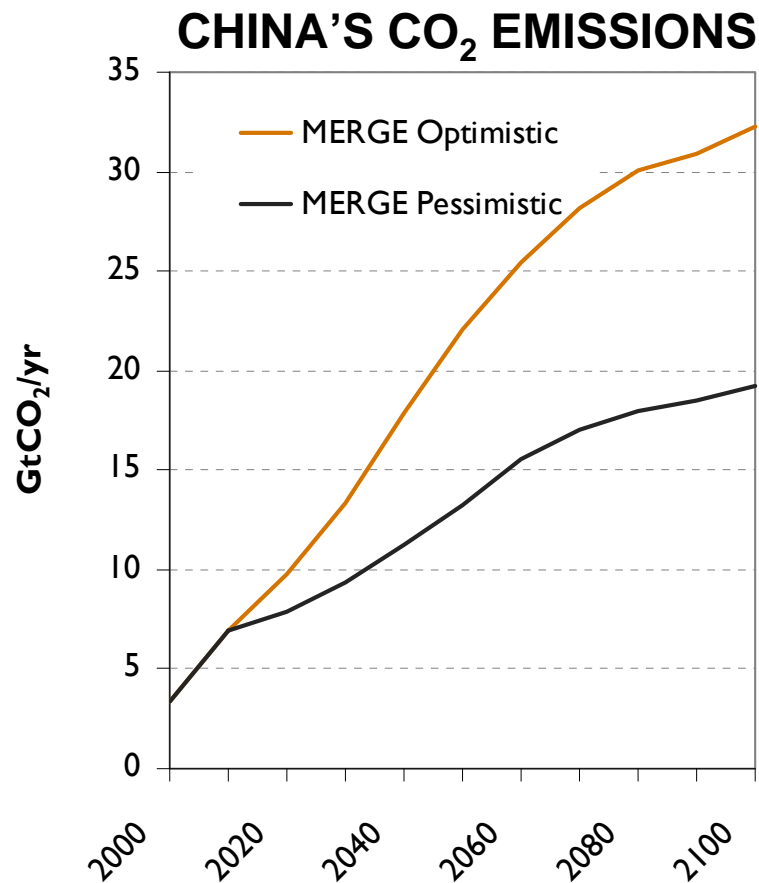
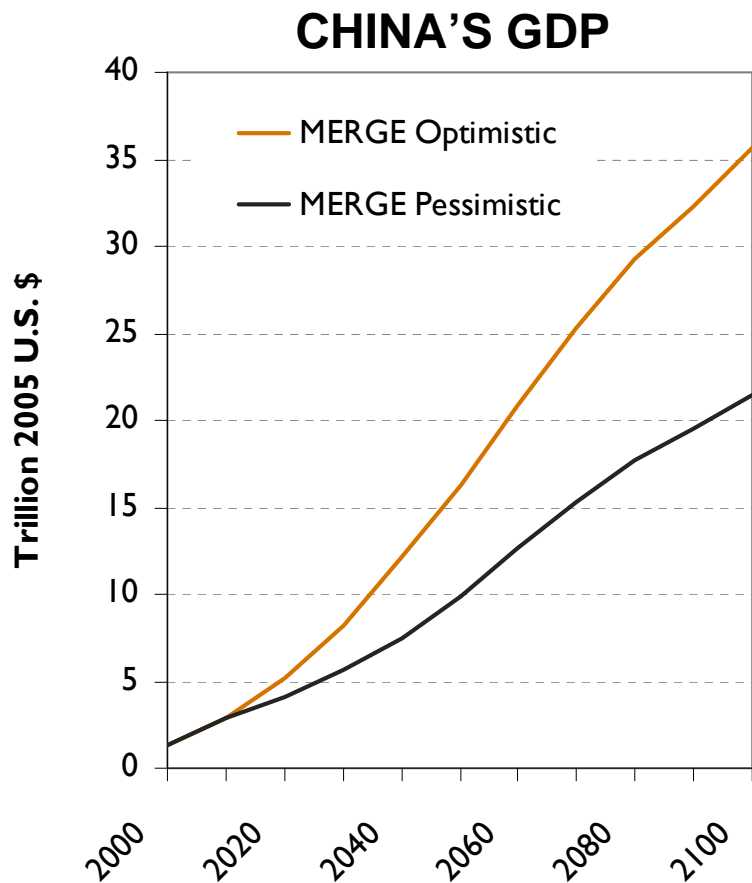


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Possible Topics

Growth and Development Paths: The effect of different population and economic growth assumptions in Asian regions



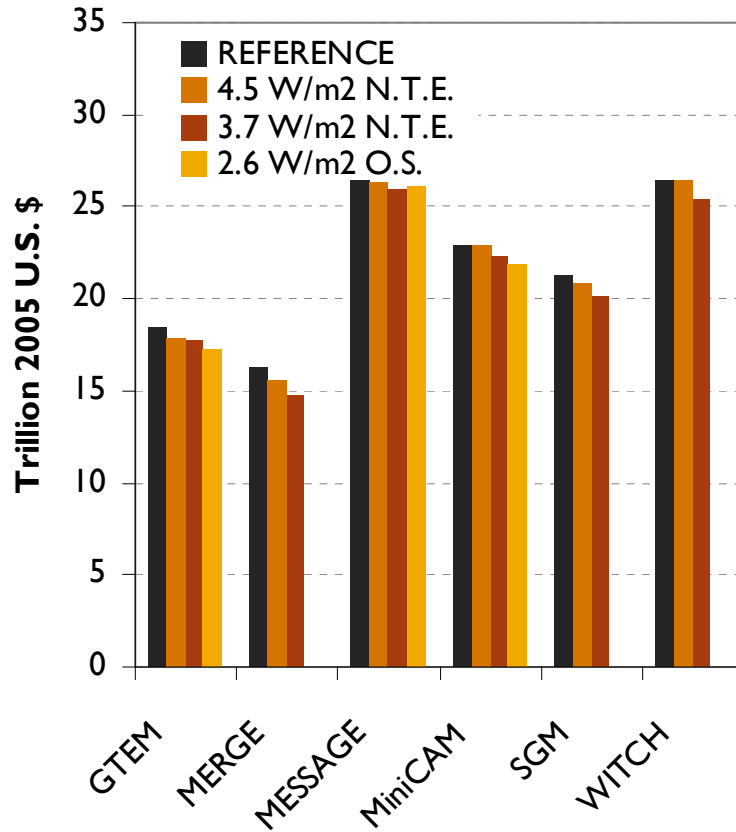
IIASA
INTERNATIONAL INSTITUTE FOR APPLIED SYSTEMS ANALYSIS

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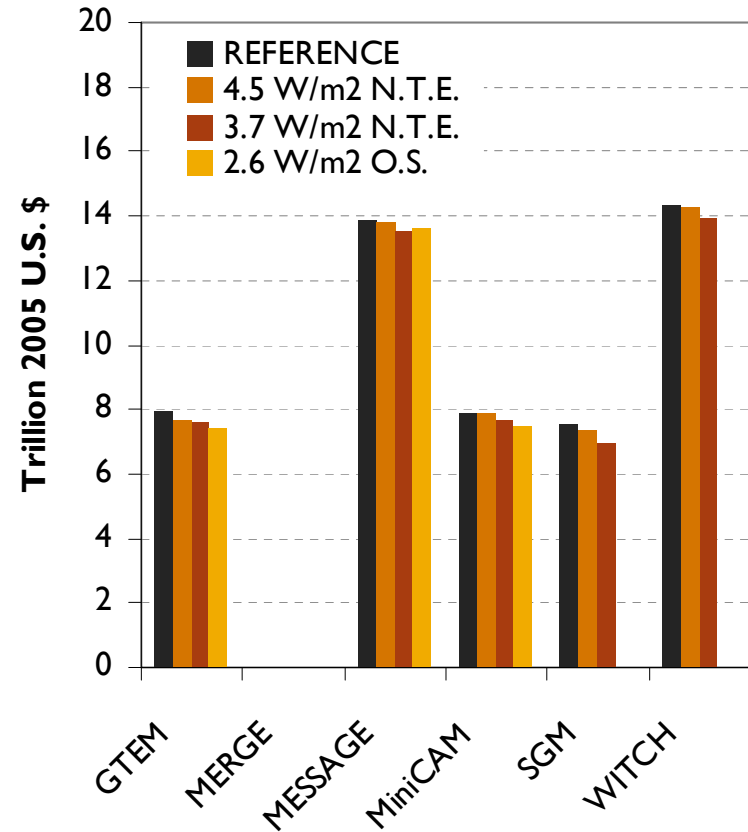
Possible Topics

International Climate Targets: The implications of varying international climate policies on Asian regions

CHINA'S GDP



INDIA'S GDP

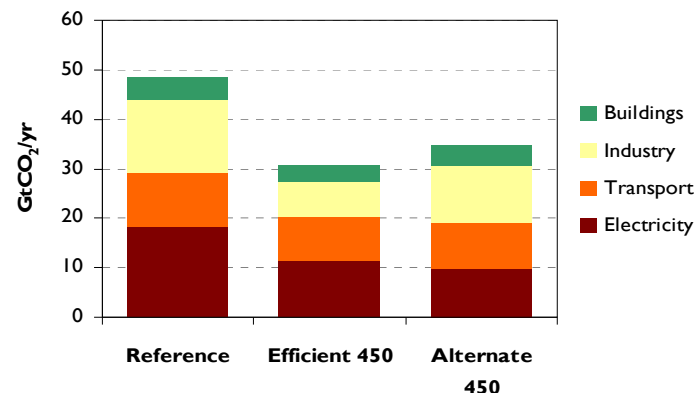


Possible Topics

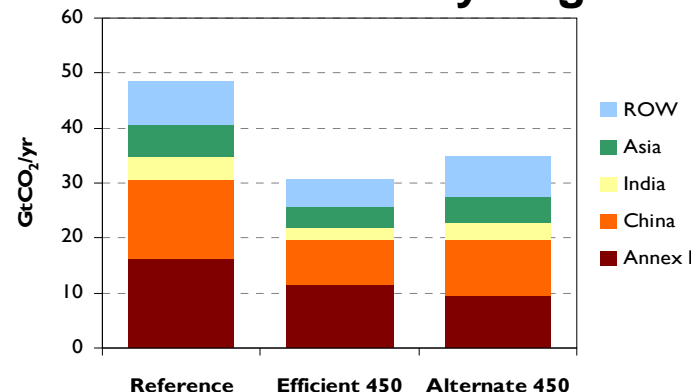
Non-Cap-and-Trade Climate Policies: The impact of various policy based commitments (e.g., RPS, energy efficiency standards, CAFE standards) on Asian regions

POLICY	REGIONS
Economy-Wide CO2 Constraint	Annex I
Power Sector Carbon Intensity	Africa, China, India, Latin America, Korea, Middle East, Southeast Asia
CAFE Standard	China, India, Latin America, Korea, Middle East, Southeast Asia
Biofuels Target	China, India, Latin America, Korea, Southeast Asia
Industry Carbon Constraint	China, Korea
Policy-Based Crediting	Africa, China, India, Latin America, Korea, Middle East, Southeast Asia

2035 Emissions by Sector

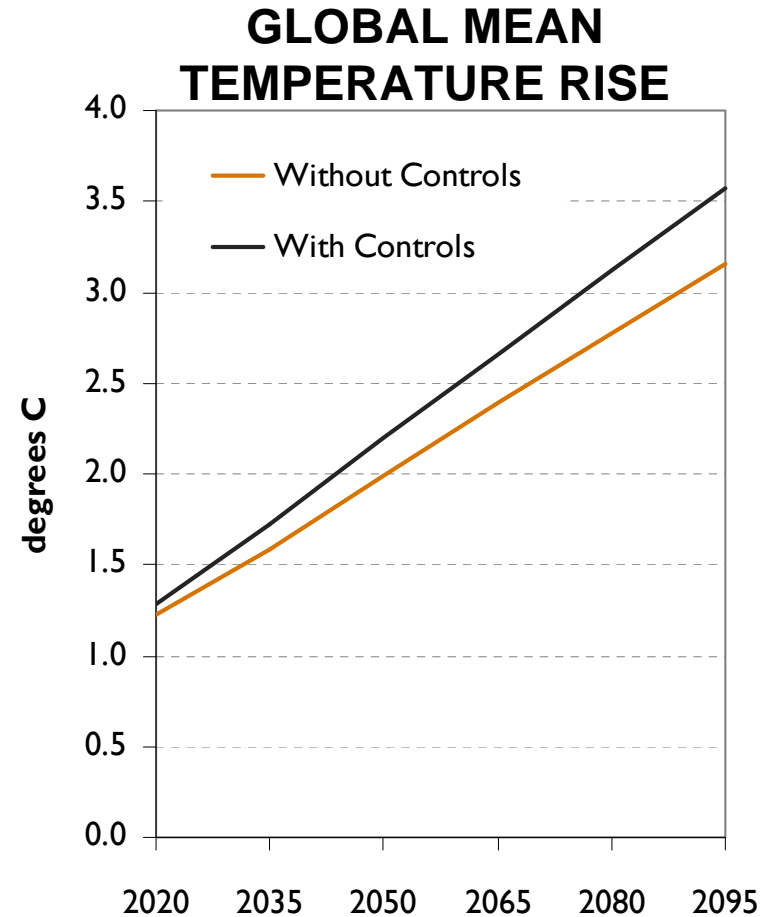
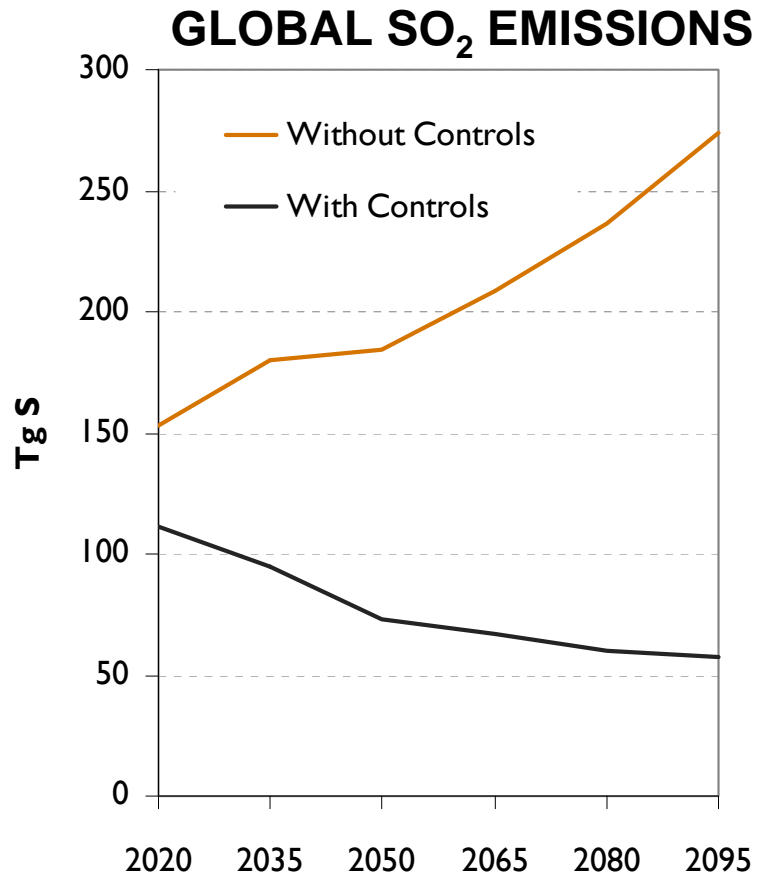


2035 Emissions by Region



Possible Topics

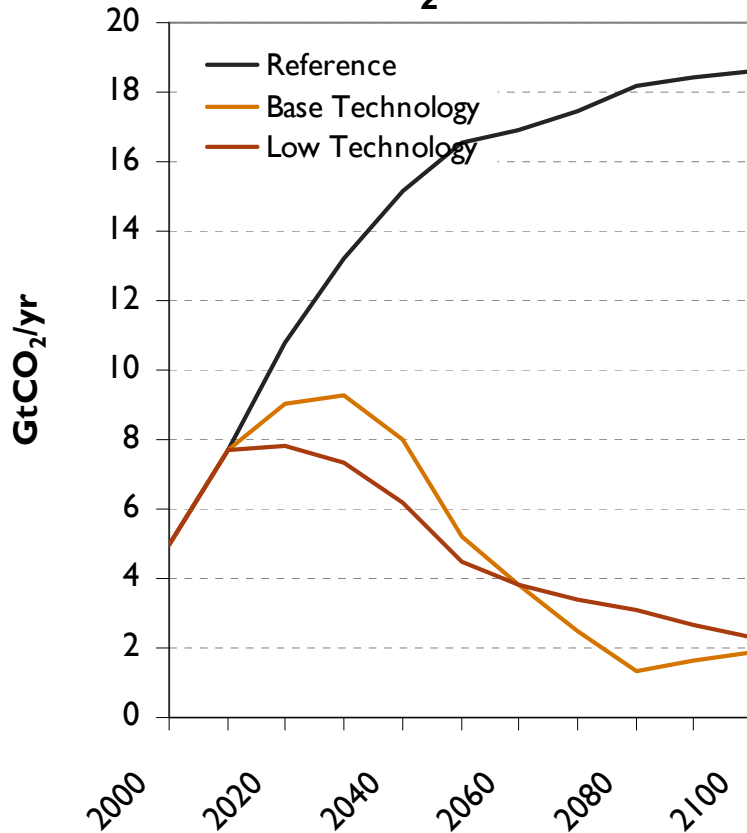
Non-Climate Policies: The impact of various non-climate policies (e.g., sulfur standards, BC policies) on Asian regions



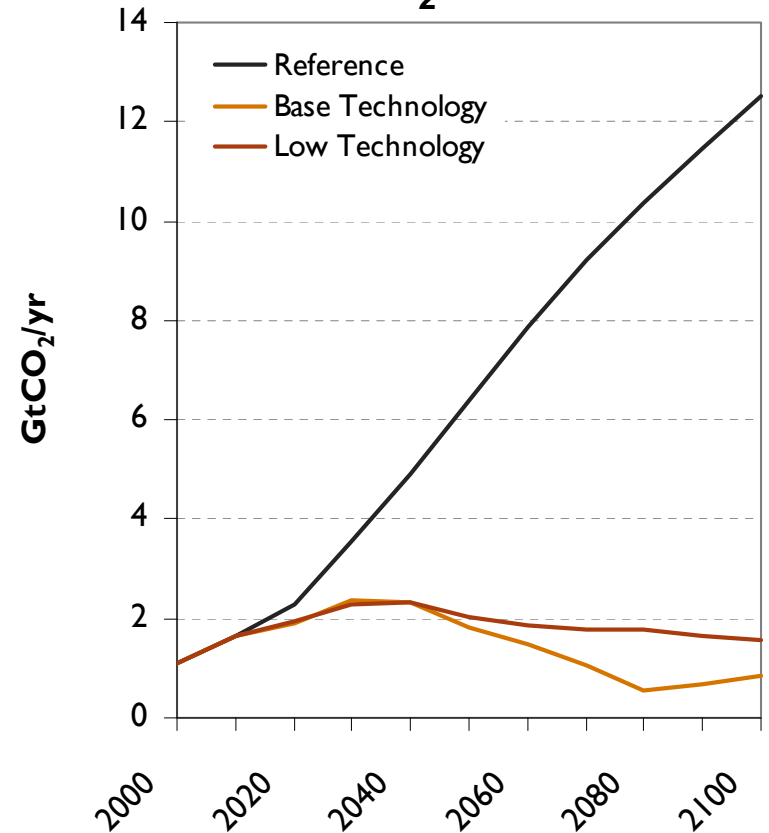
Possible Topics

Technology: The effect of various technology assumptions (different technology availability, different costs) on mitigation in Asian regions

CHINA'S CO₂ EMISSIONS



INDIA'S CO₂ EMISSIONS

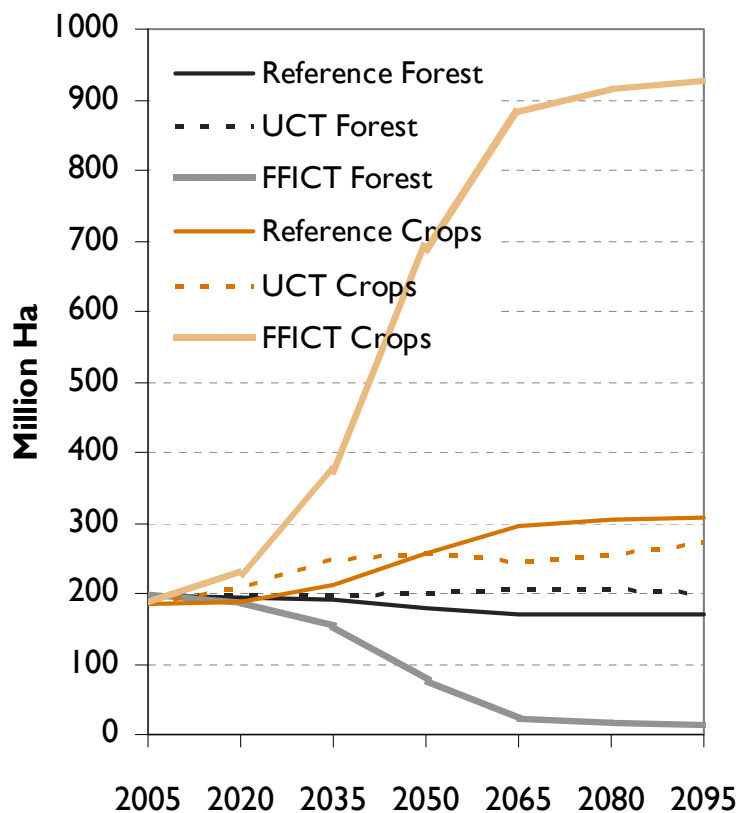


IGEC Since 1965

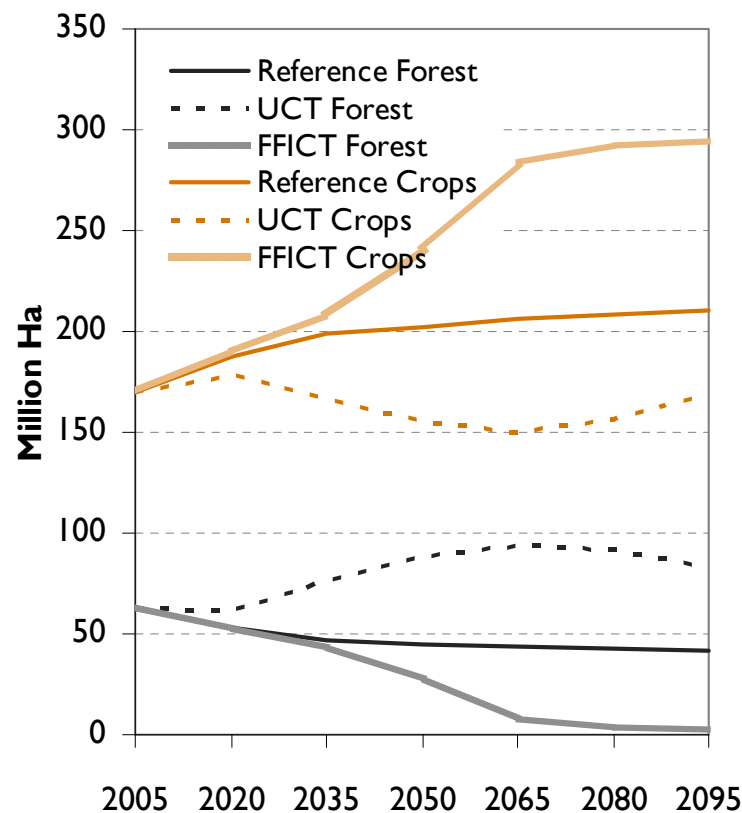
Possible Topics

Land-use Policies: The impact of land-use policies (e.g., offsets, REDD) on agriculture, land-use, and land-use change emissions in Asian regions.

CHINA'S LAND

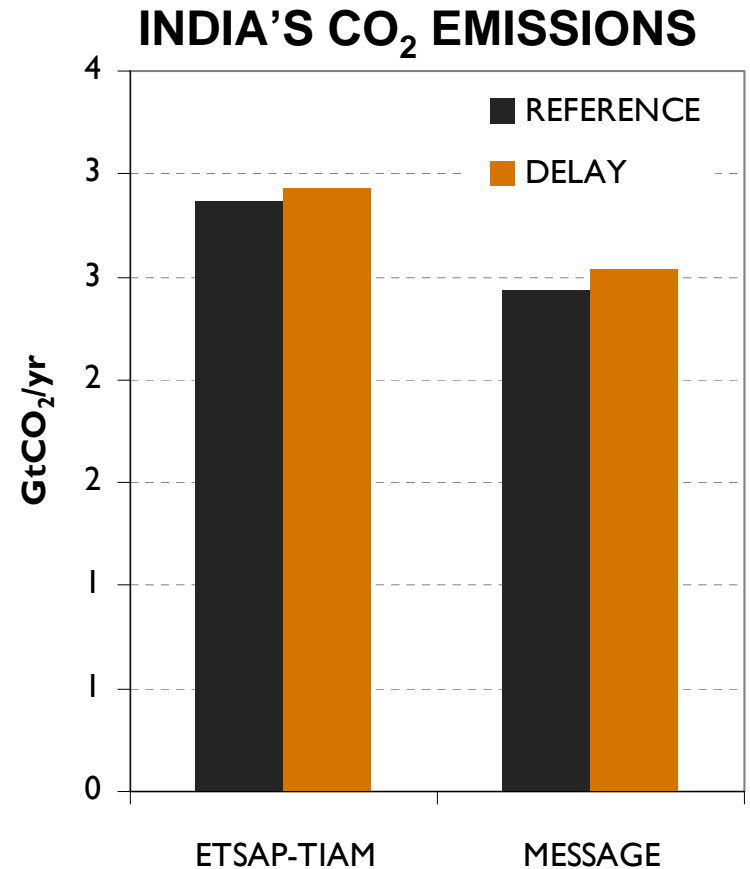
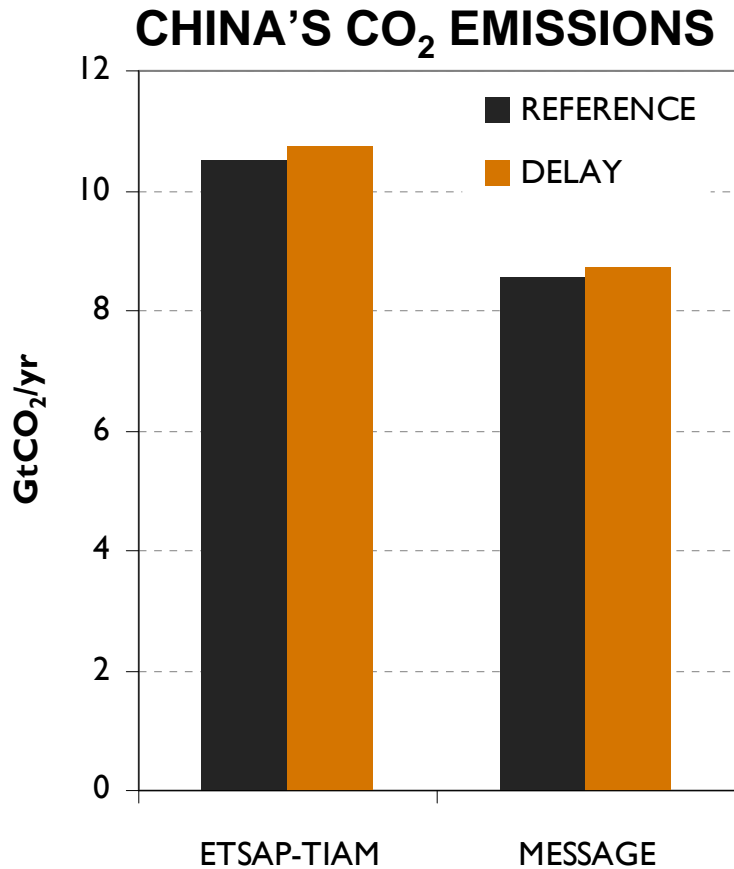


INDIA'S LAND



Possible Topics

Imperfect Cooperation on Climate Policy: The degree of emissions leakage in Asian regions as a result of differentiated climate policies around the world.

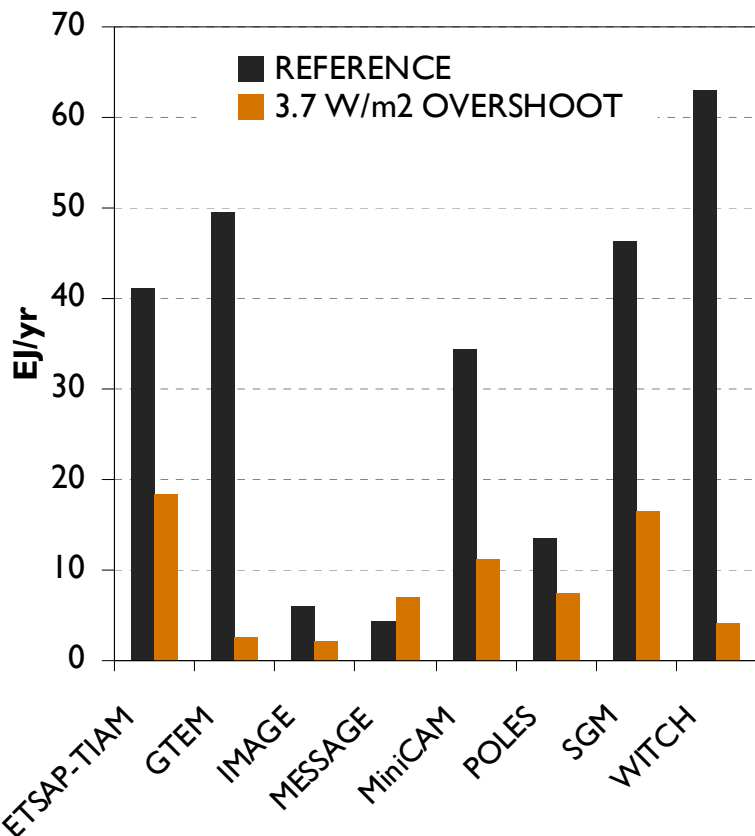


Possible Topics

Climate Policy on Energy Security and International Trade:

The implications of climate policy on energy security and international trade within Asia, and between Asia and the rest of the world.

CHINA'S OIL CONSUMPTION



INDIA'S OIL CONSUMPTION

