



Asia-Pacific
Environmental Innovation Strategy Project

Modeling Innovations for Sustainable Development

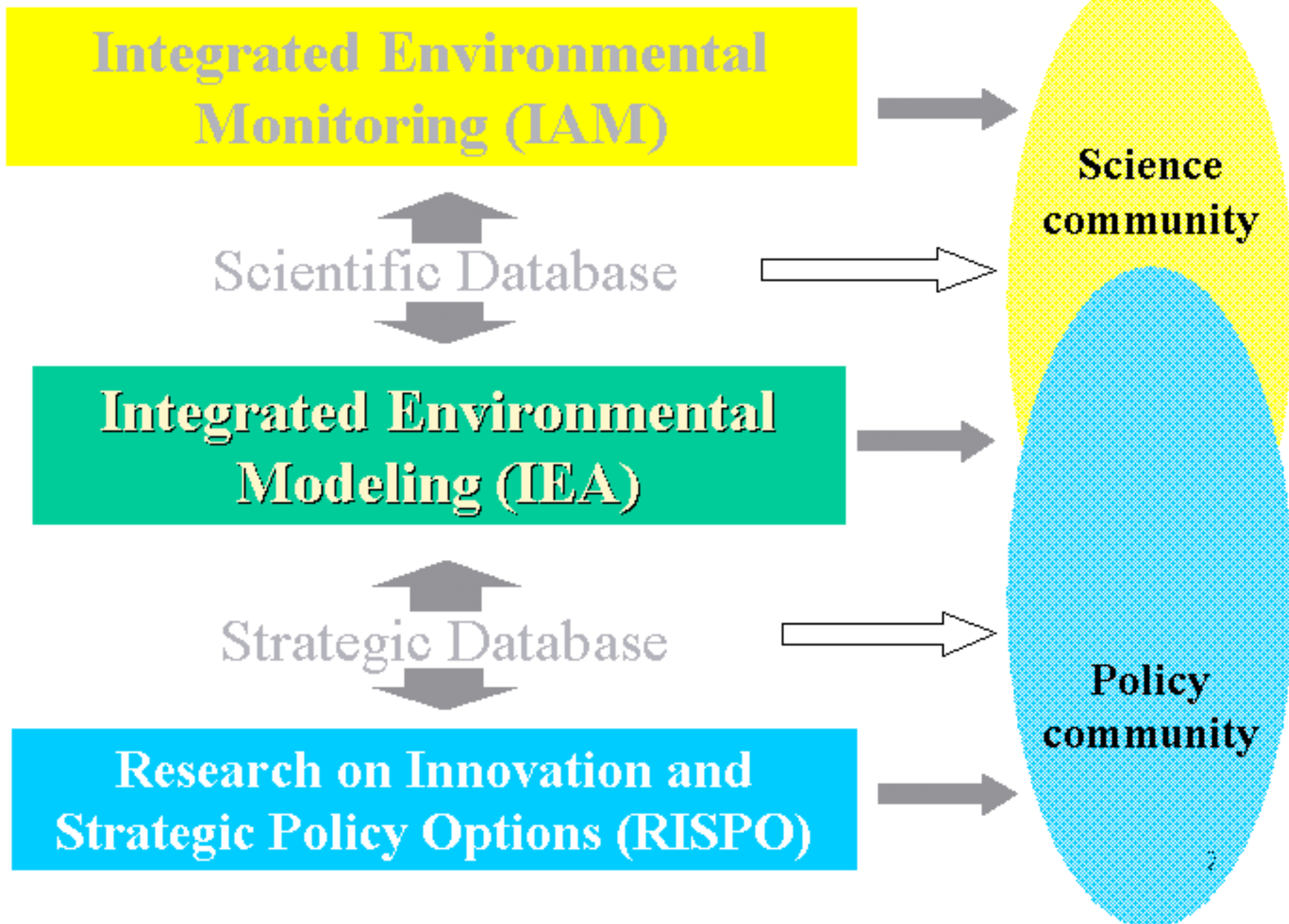
Integrated Environmental Assessment Sub-project

Eco Asia 2003

7 June 2003, Shonan, Japan

Prof. P. R. Shukla

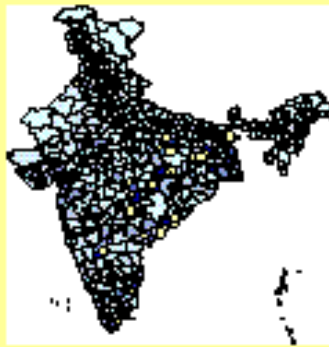
(International AIM Project Team)



Asia-Pacific Integrated Model (AIM) for APEIS

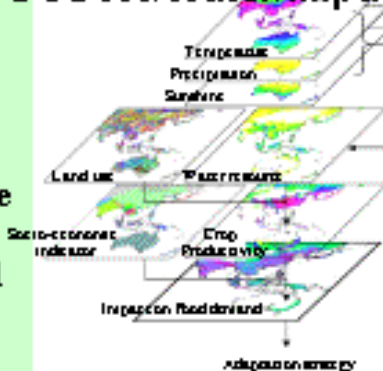
AIM/Energy/Technology/Country

A bottom-up technology selection model of energy use and emissions at country and local level



AIM/Ecosystem/Water/Impact

A set of ecosystem models, including a vegetation dynamics model, a water resource model, an agricultural productivity model and a health impact model



AIM/Bottom-up

A bottom-up technology & land use model for Asia-Pacific region

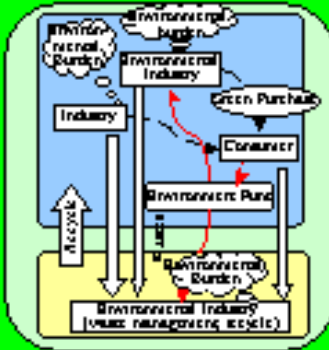
AIM/Top-down

A general-equilibrium-type world economic model

AIM Family

AIM/Material

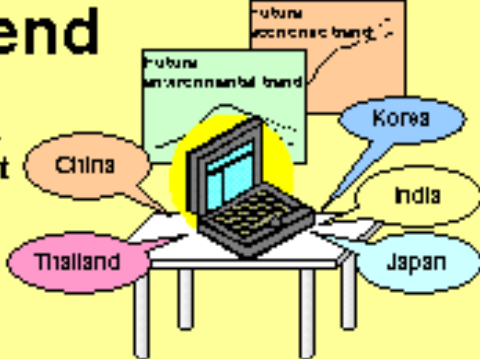
A environment-economy integrated model with material balance and recycling process modules



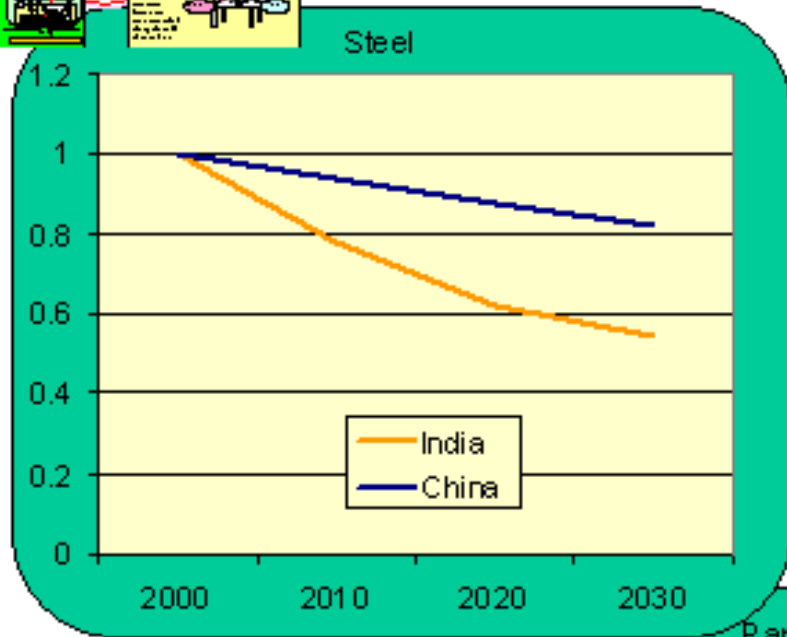
Technology innovation | Technology needs
Research on technologies

AIM/Trend

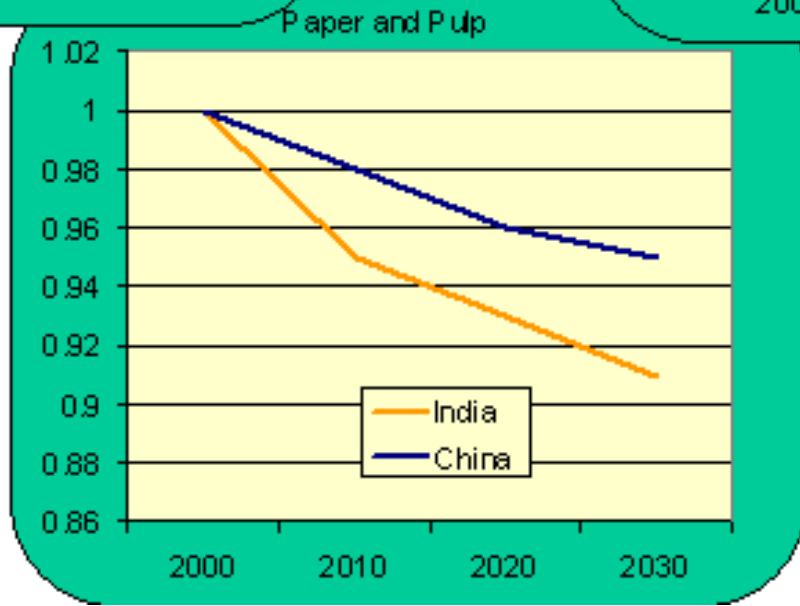
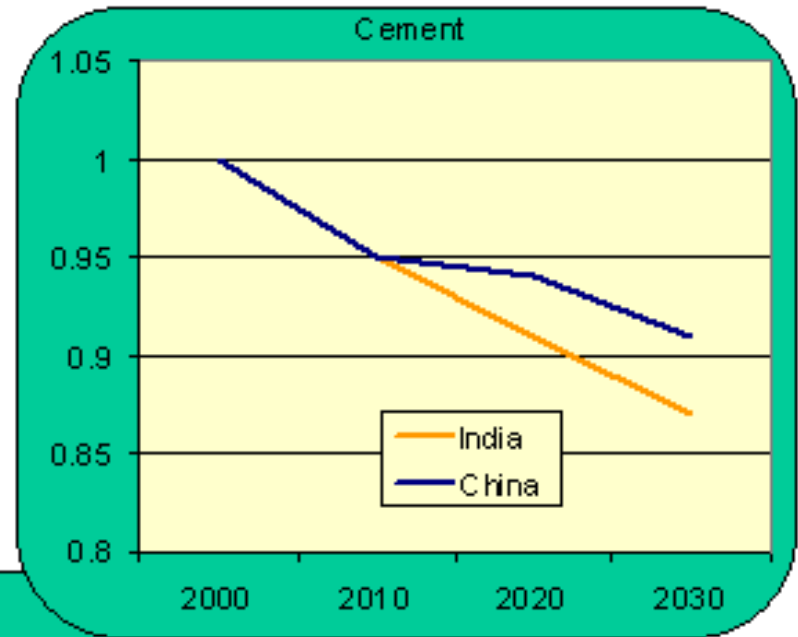
A reduced-form model to project future socio-economic trends and environmental change for all 42 countries



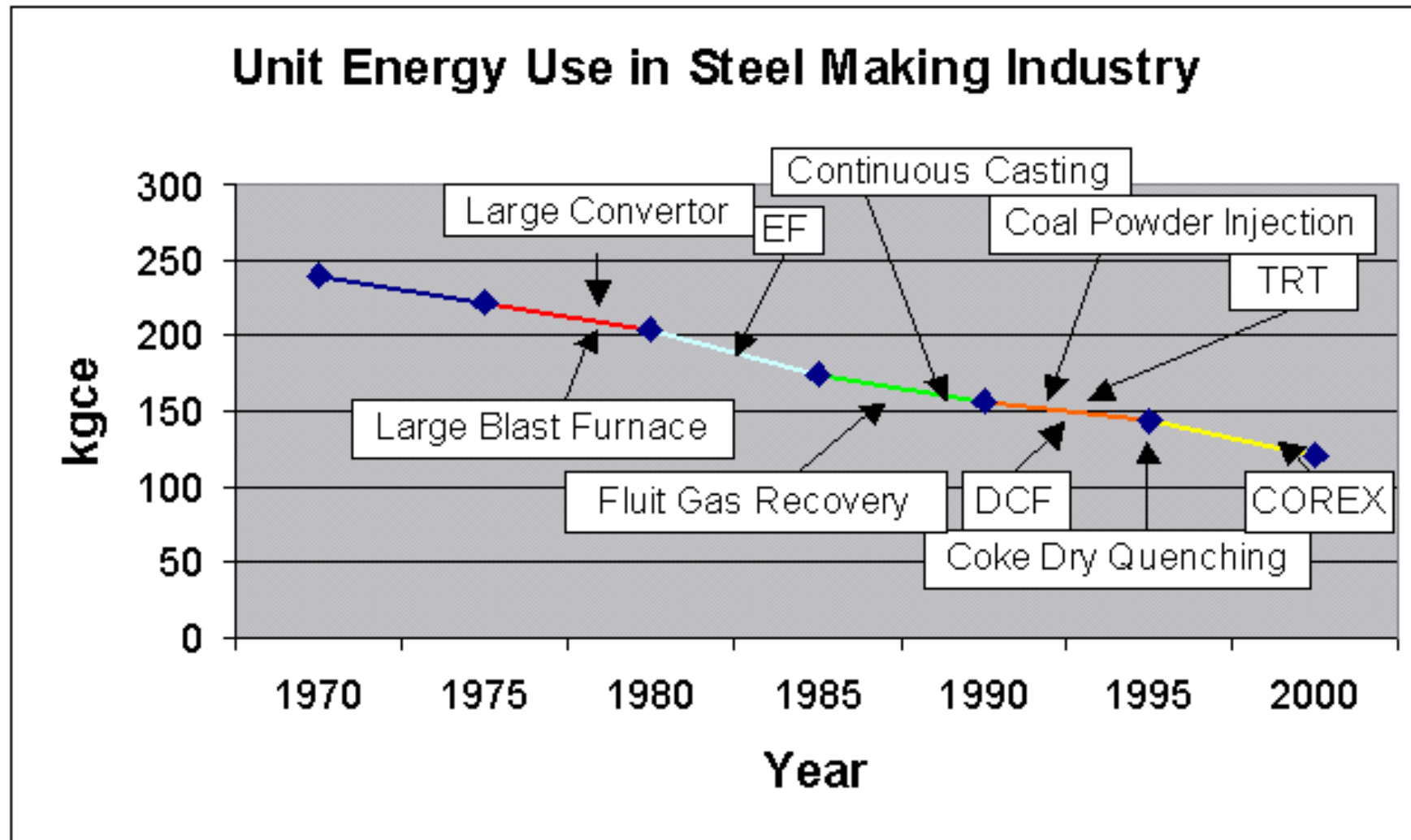
Projection of Energy Intensity



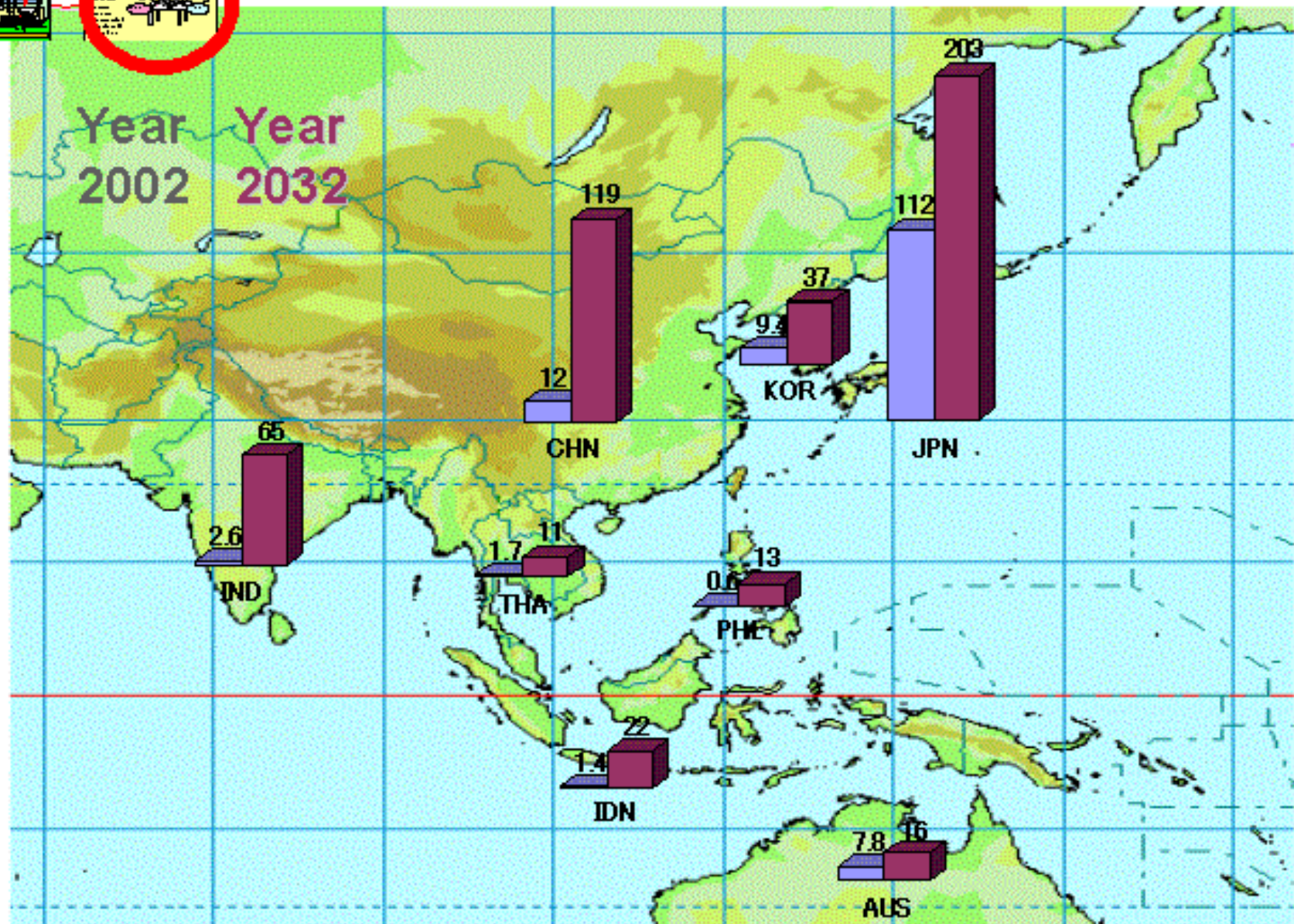
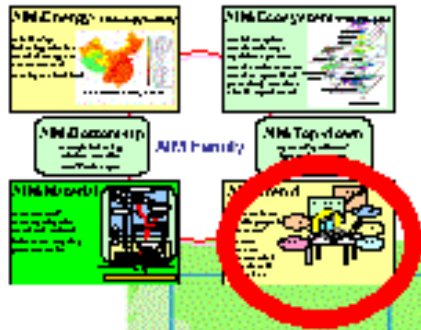
Index
2000 = 1



Steel Making in China



Production of Environmental Industries in the Asia-Pacific Major Countries (billion US\$)





Target Countries

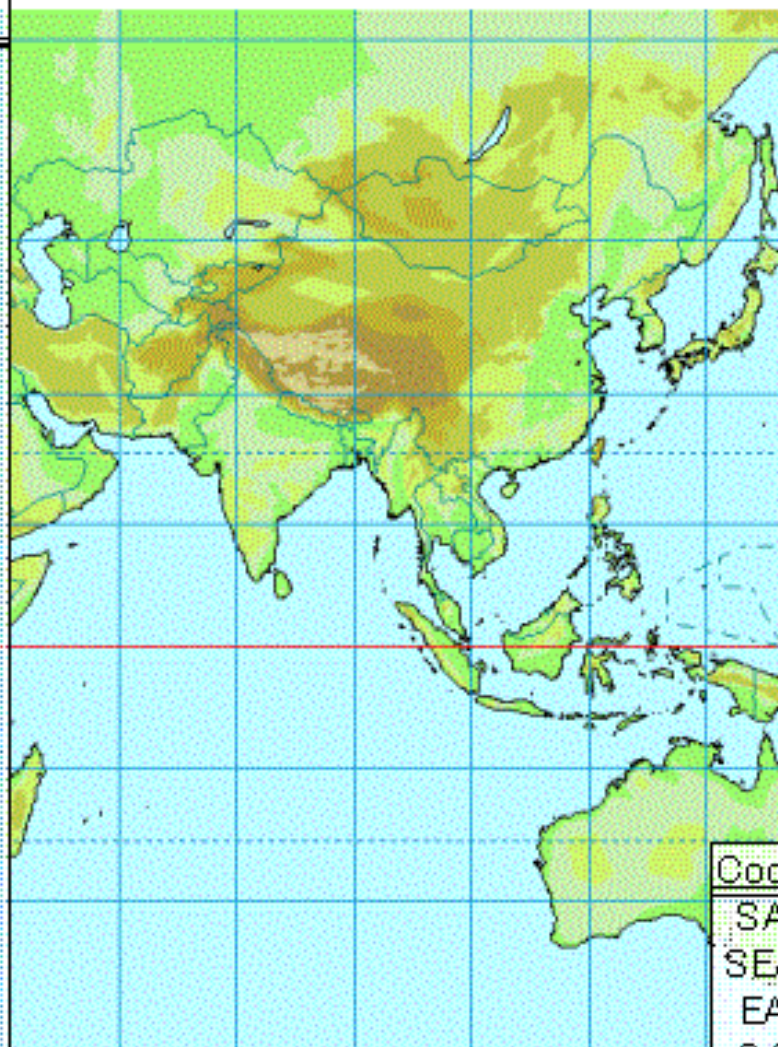
Advanced Model Application

25 countries

Compact Model Application

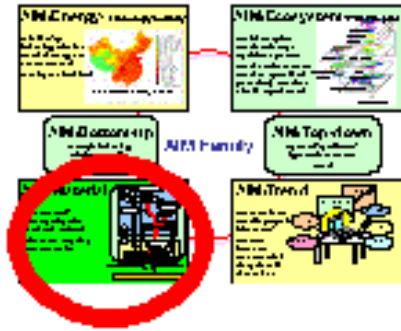
17 countries

Code	Country	Group
AUS	Australia	ANZ
BGD	Bangladesh	SA
CHN	China	EA
IDN	Indonesia	SEA
IND	India	SA
IRN	Iran	SA
JPN	Japan	EA
KAZ	Kazakhstan	CA
KGZ	Kyrgyz Republic	CA
KOR	Korea,Rep	EA
LKA	Sri Lanka	SA
MMR	Myanmar	SEA
MYS	Malaysia	SEA
NPL	Nepal	SA
NZL	New Zealand	ANZ
PAK	Pakistan	SA
PHL	Philippines	SEA
PRK	Korea, Dem	EA
SGP	Singapore	SEA
THA	Thailand	SEA
TJK	Tajikistan	CA
TKM	Turkmenistan	CA
TWN	Taiwan, China	EA
UZB	Uzbekistan	CA
VNM	Vietnam	SEA

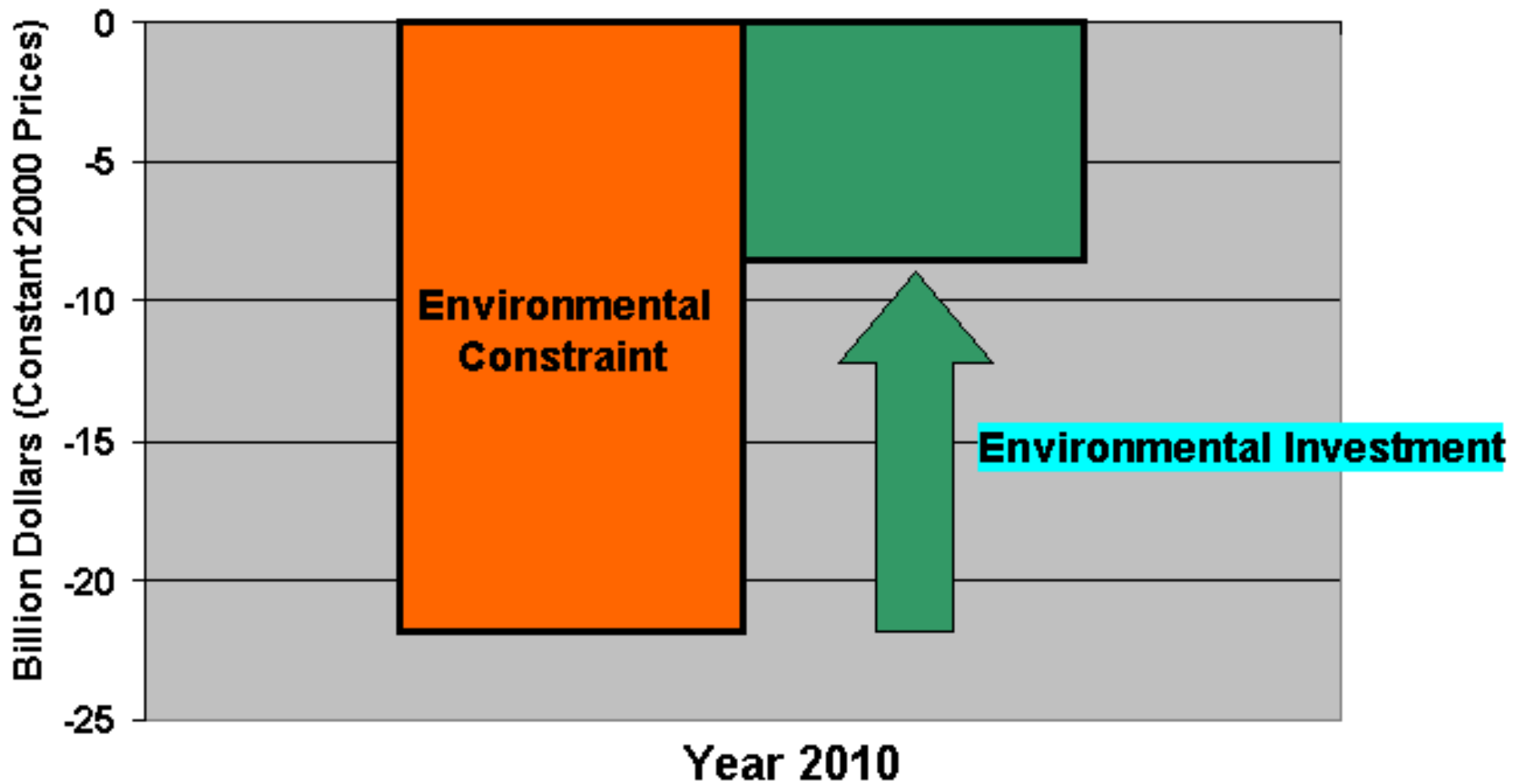


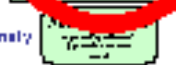
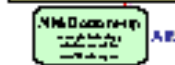
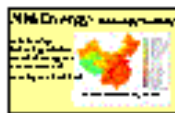
Code	Country	Group
AFG	Afghanistan	SA
BRN	Brunei	SEA
BTN	Bhutan	SA
FJI	Fiji	SP
KHM	Cambodia	SEA
KIR	Kiribati	SP
LAO	Lao	SEA
MDV	Maldives	SA
MNG	Mongolia	EA
NRU	Nauru	SP
PLW	Palau	SP
PNG	Papua New Guinea	SP
PYF	French Polynesia	SP
SLB	Solomon Islands	SP
TON	Tonga	SP
VUT	Vanuatu	SP
WSM	Samoa	SP

Code	Group
SA	South Asia
SEA	Southeast Asia
EA	Northwest Pacific and East Asia
CA	Central Asia
ANZ	Australia And New Zealand
SP	South Pacific

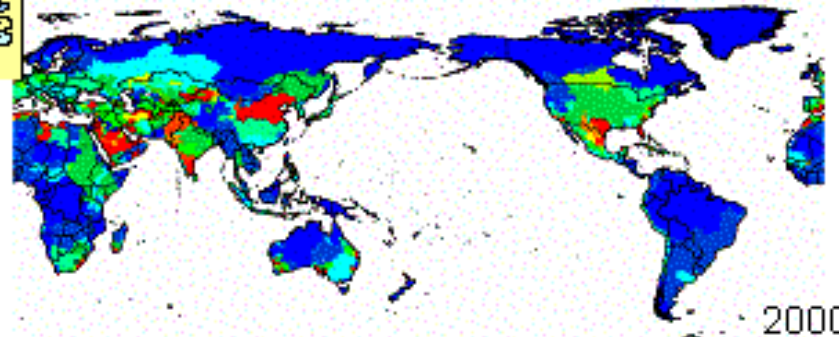


Indian GDP Recovery by Environmental Industries

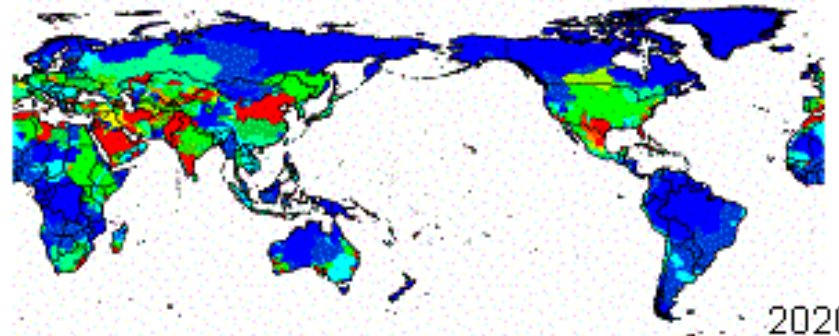




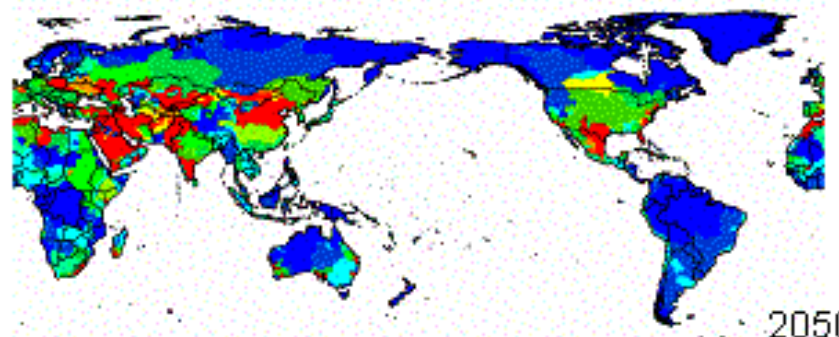
AIM/Water simulations



2000

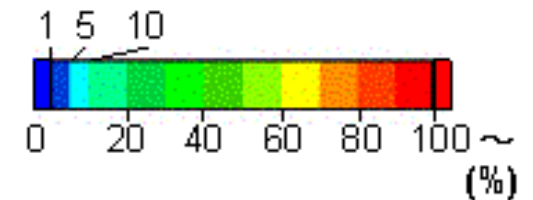


2020

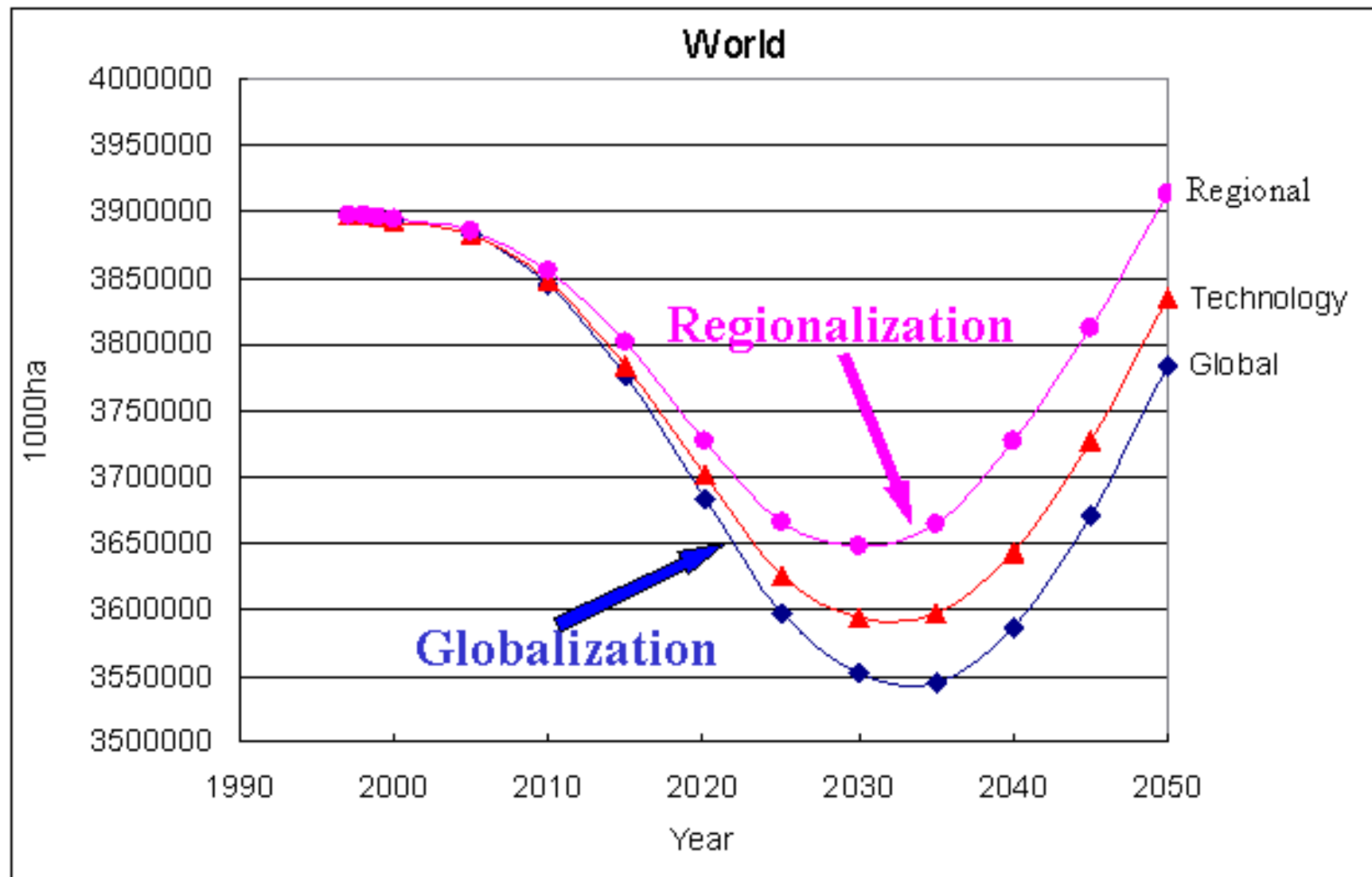


2050

Water Stress Index
(ratio between total withdrawal and renewable water resource)

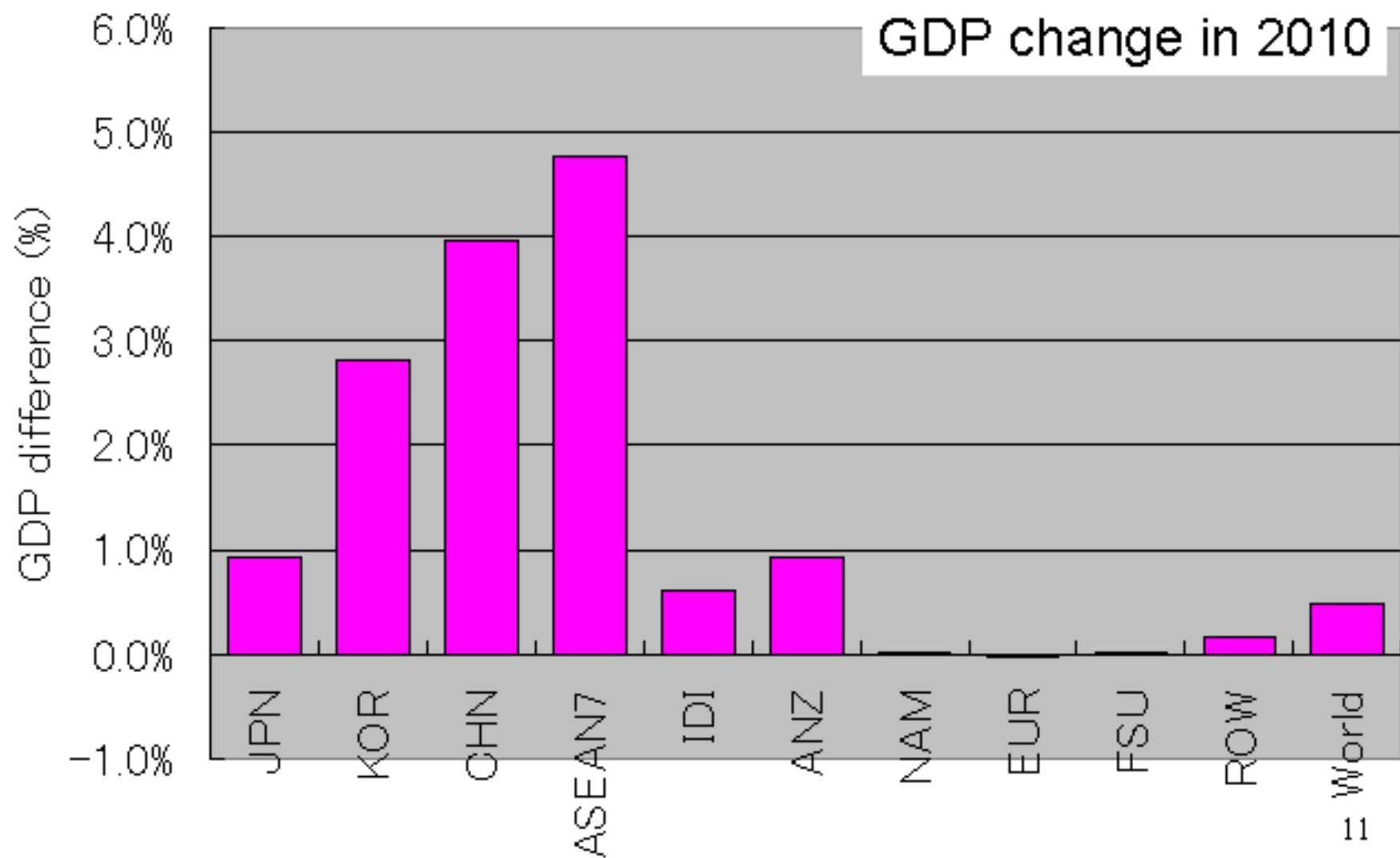


Forest area (World)

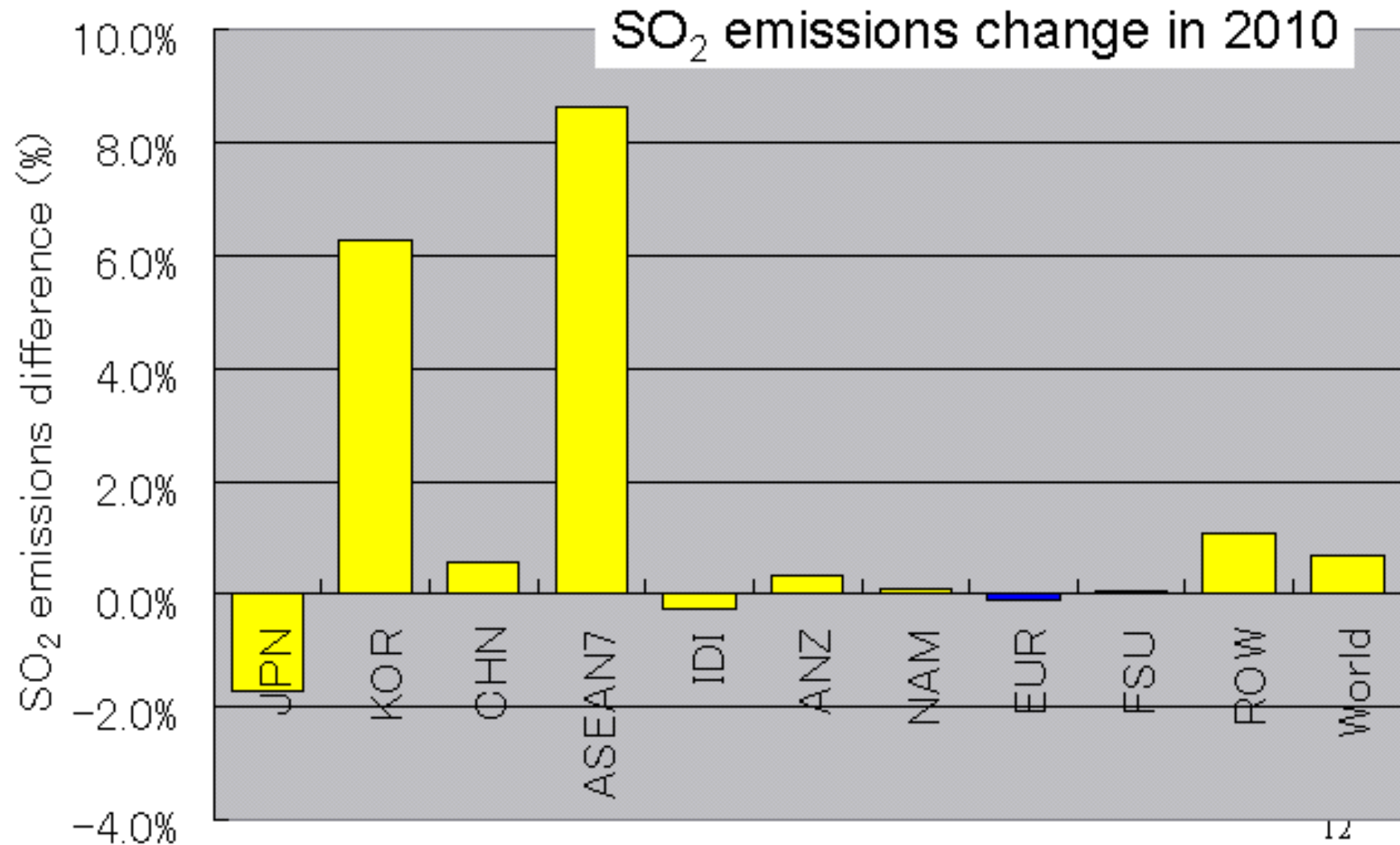




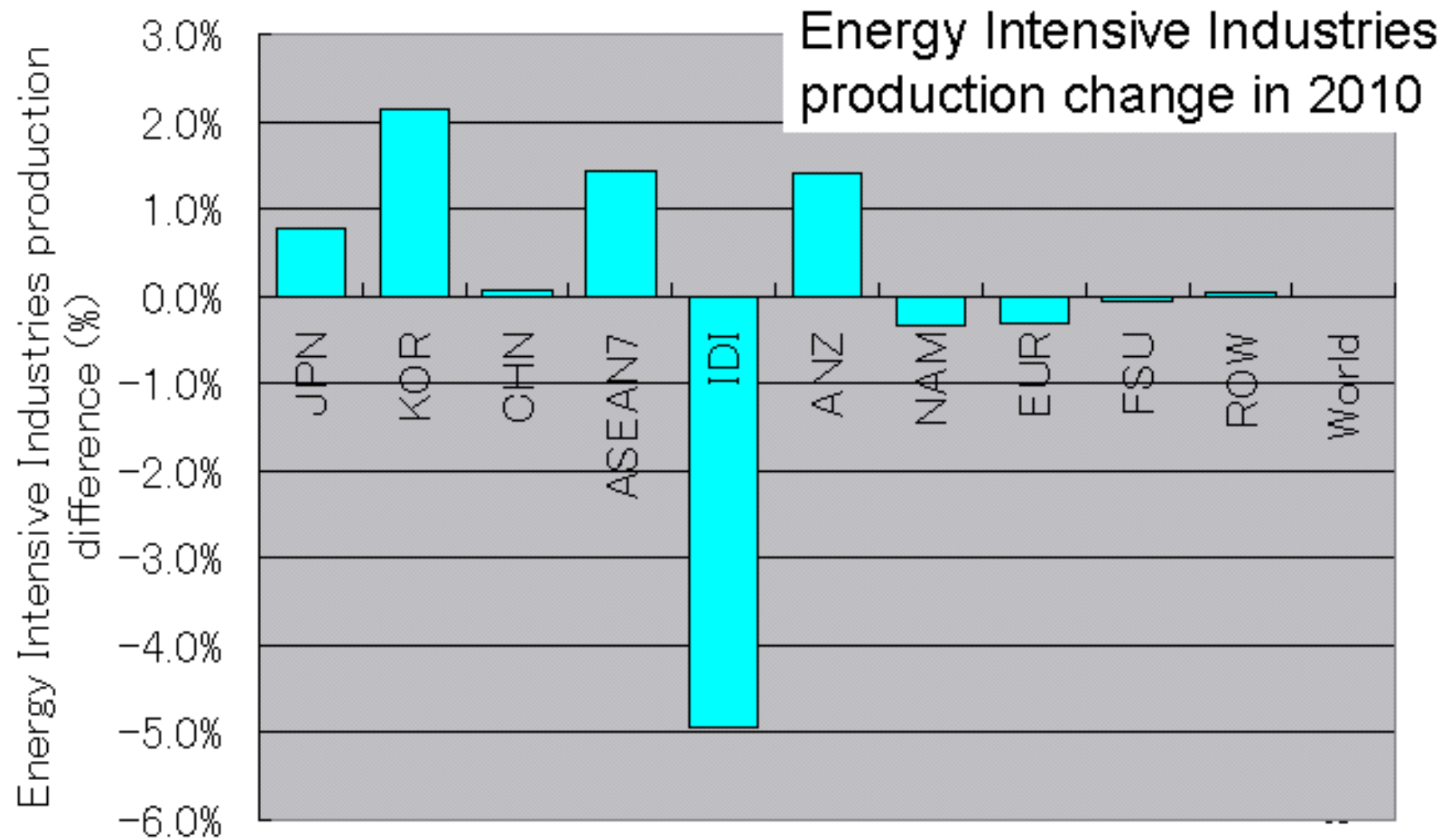
FTA impacts on Asia



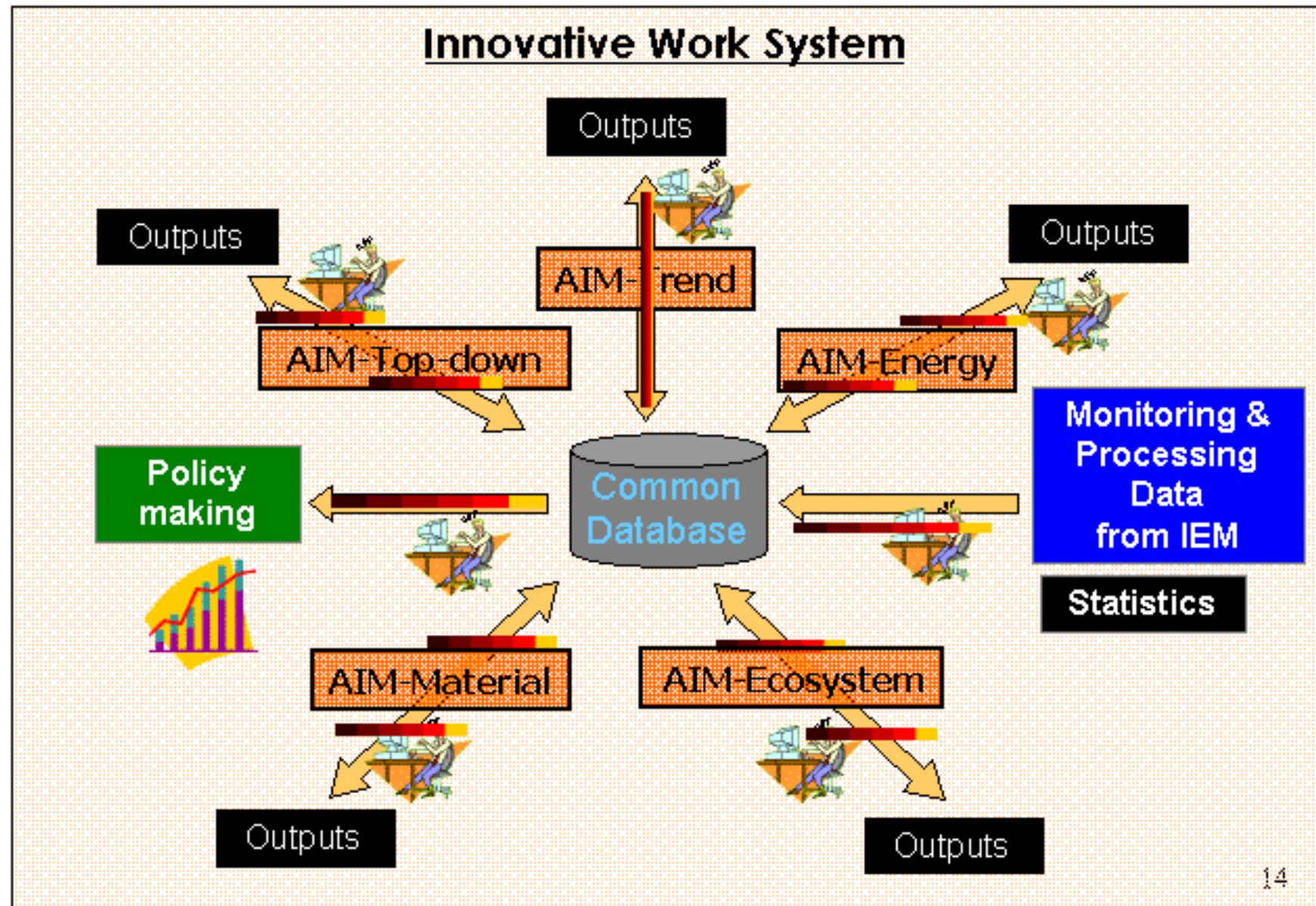
FTA impacts on Asia



FTA impacts on Asia



Strategic Database

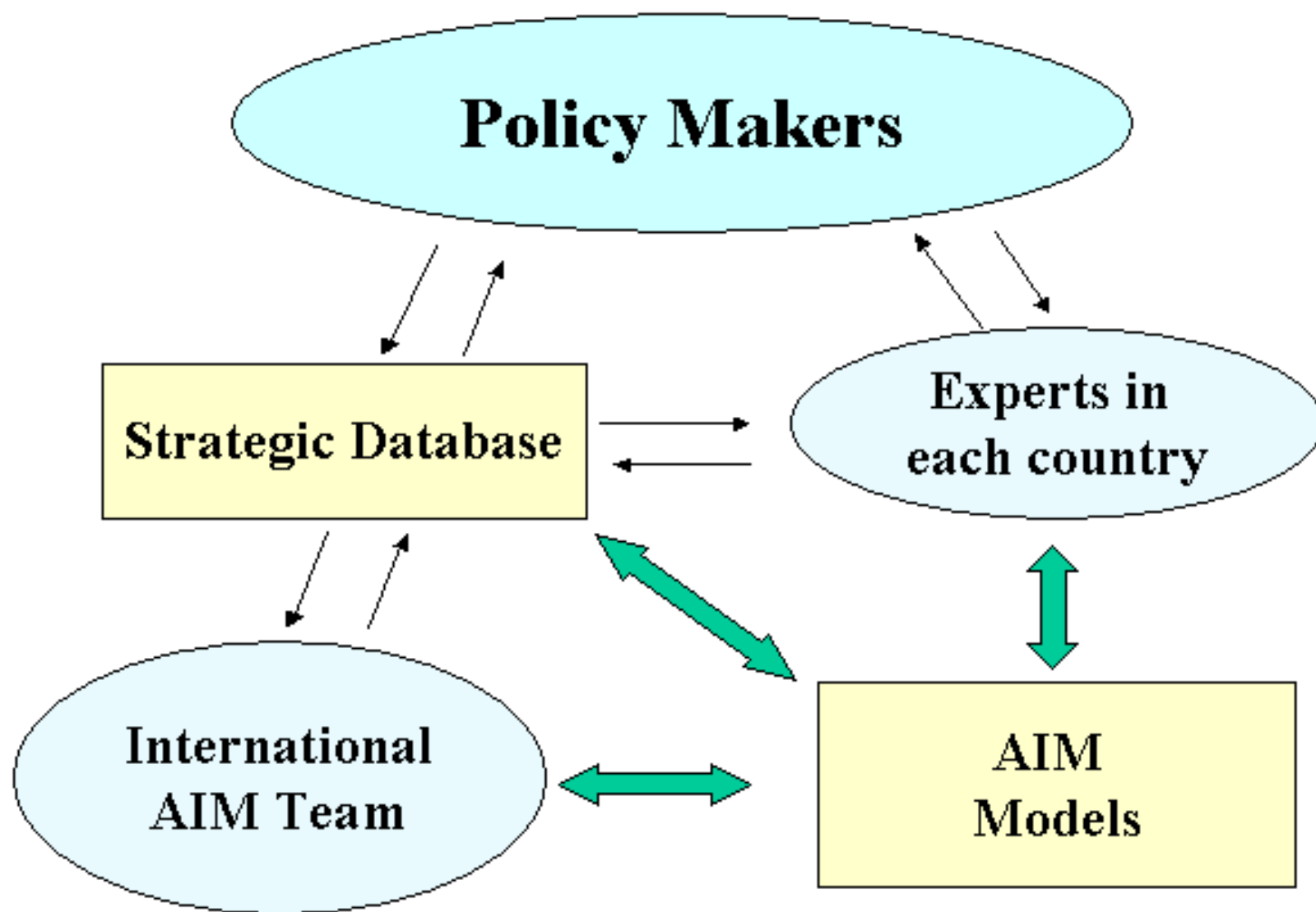


Preliminary messages from IEA

- 1. Technological innovation potentials for the environment are very large, much different among countries, therefore great opportunities of regional collaboration.*
- 2. Technological innovation is effective if integrated with social innovations*
- 3. Incentives should be combined to induce environmental innovations, e.g. top-down and bottom-up*

Preliminary messages from IEA (cont.)

- 4. Investment into natural capitals could bring double dividend*
- 5. Globalization would introduce innovations mainly in emission reduction, while it could affect the incentives to sustain ecosystems*
- 6. Free Trade Agreement would have varied economic and environmental impacts on different Asian countries*



APEIS-IEA Activities and Dialog with Policy Makers

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- A group of approximately 20 people, including men and women of various ethnicities, are posed for a group photograph. They are dressed in professional business attire, such as suits, blouses, and dresses. The setting appears to be an indoor conference room or meeting space. In the background, a banner is partially visible with the text "2015 Global Policy Dialogue Workshop on".
- **Asian Institute of Technology (Thailand);**
 - **Energy Research Institute, SDPC (China);**
 - **Institute of Geographical Sciences and Natural Resources Research, CAS (China);**
 - **Indian Institute of Management, Ahmedabad (India);**
 - **Korea Environment Institute (Korea);**
 - **Kyoto University (Japan);**
 - **NIES (Japan);**
 - **Sangmyung University (Korea);**
 - **Universiti Putra Malaysia (Malaysia)**