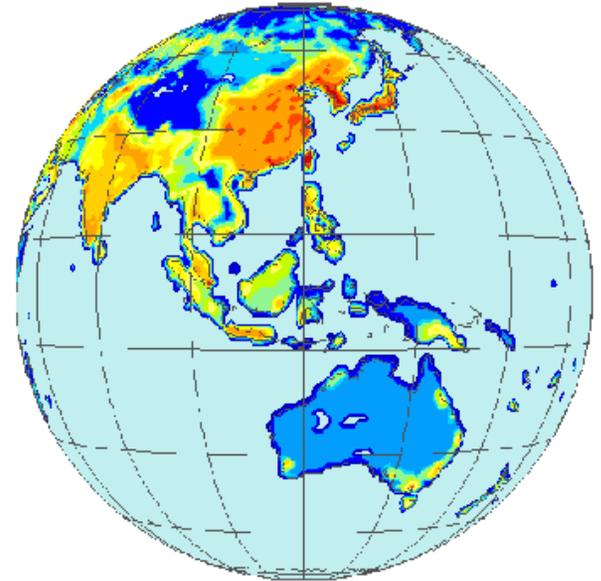


Integrated Assessment Model for APEIS



Toshihiko MASUI

National Institute for Environmental Studies

The 11th AIM International Workshop

Ohyama Memorial Hall, NIES

February 20th, 2006

Topics of this presentation

- AIM/APEIS training workshop (Nov. 2006)
- Application of IAM (1)
 - air pollution and health impact
 - Conducted by Dr. Wan Yue
- Application of IAM (2)
 - introduction of water
 - Conducted by Mr. Onoduka (TIT)
- Another application will be introduced in session of "Low Carbon Society"



Training workshop for APEIS

- Understanding features of CGE models
 - role, strength, shortcomings, limitation, ...
- Learning programming
- Understanding simulation

- Date: November 2006
- Place: NIES
- Participants: China, India, Japan (Kyoto U. & TIT), Taiwan, Thailand



Training workshop for APEIS

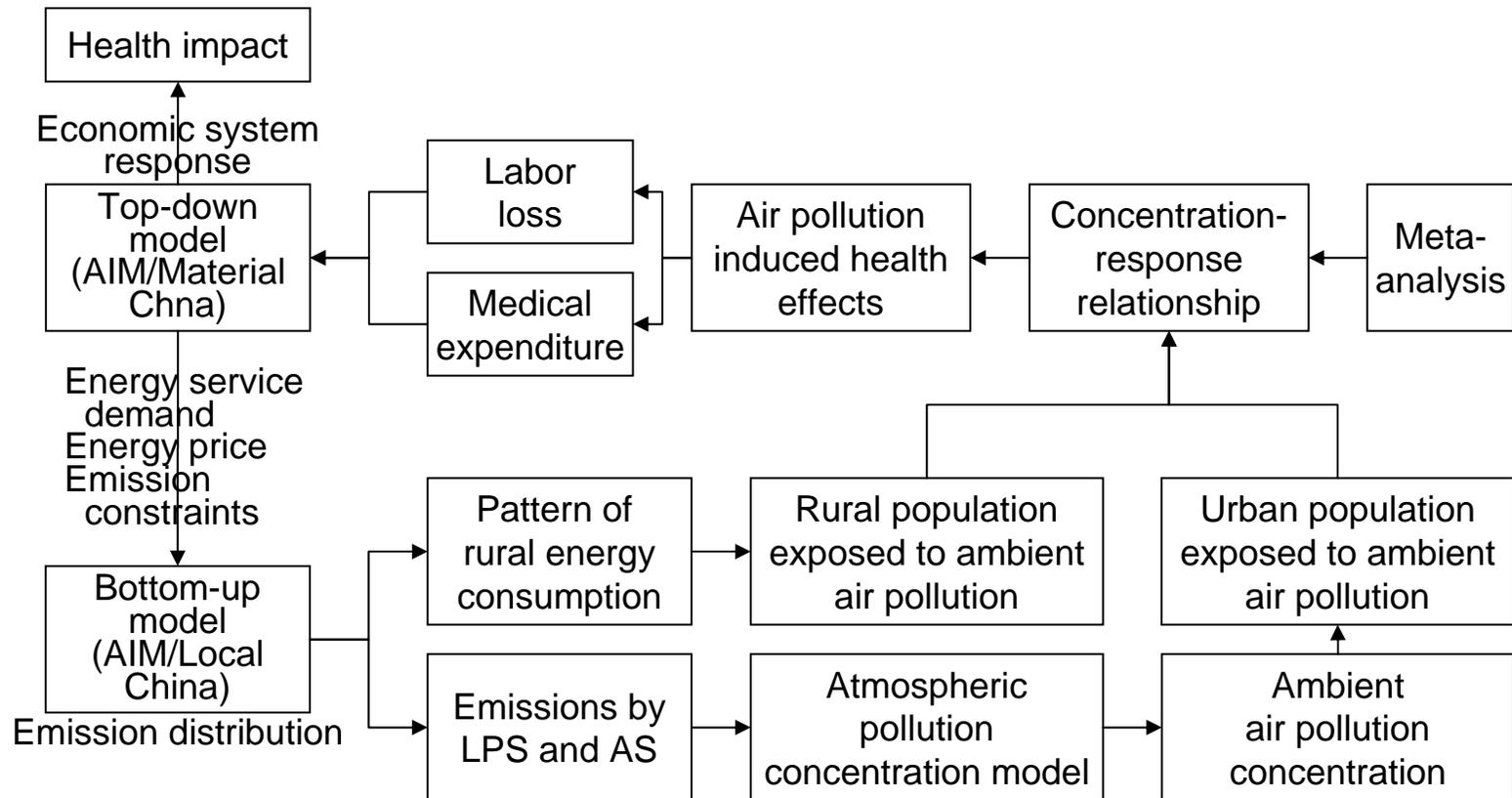


Application of IAM

(1) Air pollution and health impact assessment

This work was completed by *Dr. Wan Yue*.

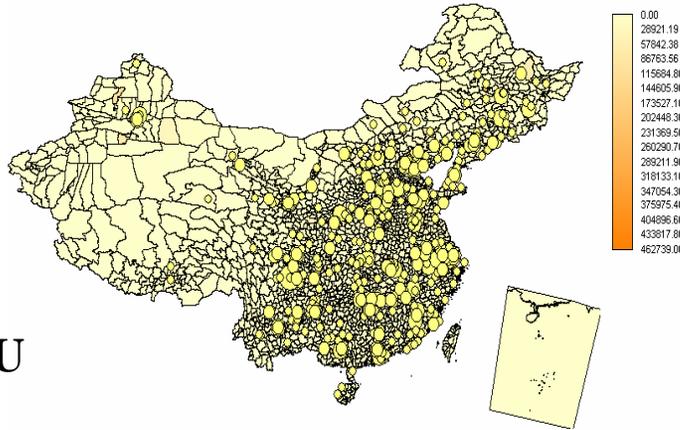
Estimation of economic impacts suffered from air pollution by using AIM components.



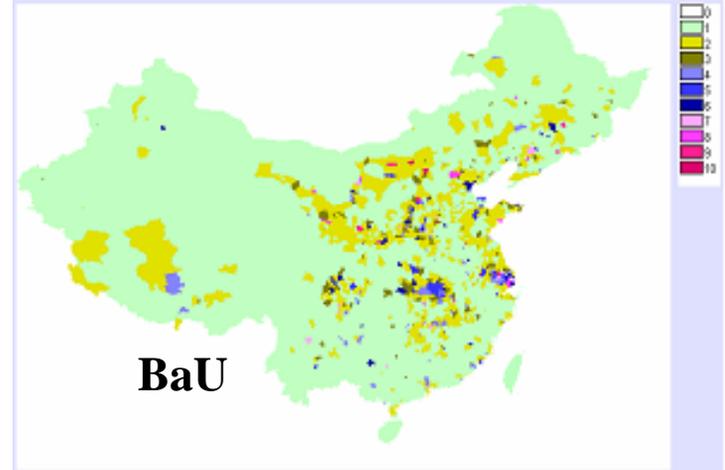
Application of IAM

(1) Air pollution and health impact assessment

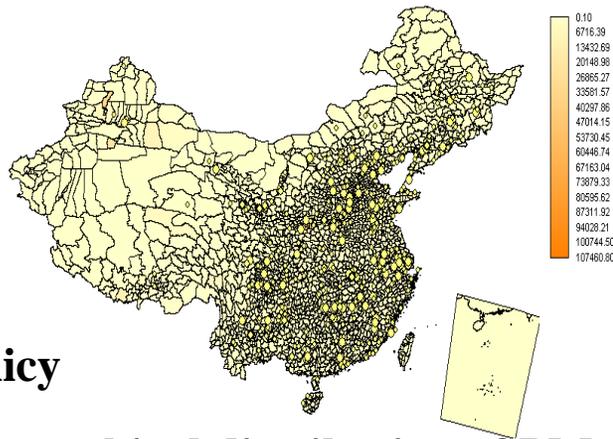
BaU



BaU



Policy



Policy



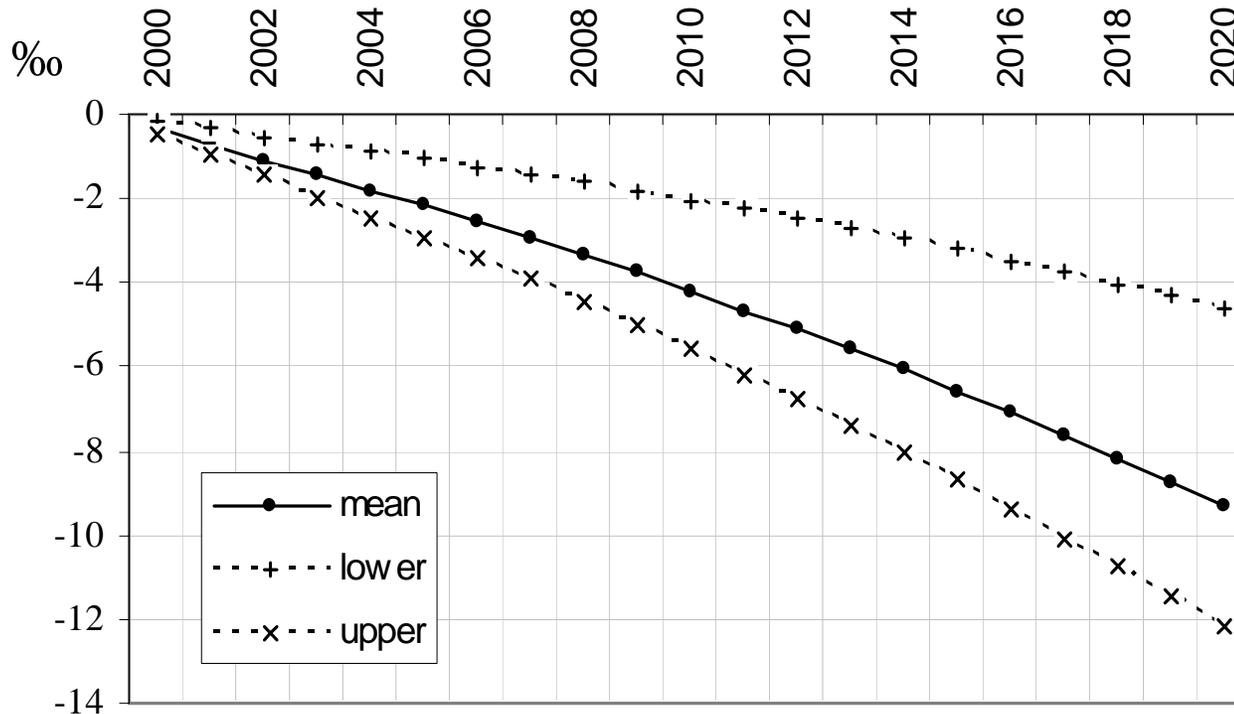
Geographical distribution of PM_{10} emissions across China in 2020 (unit: ton)

Ambient concentration of PM_{10} in urban areas of China in 2020



Application of IAM

(1) Air pollution and health impact assessment

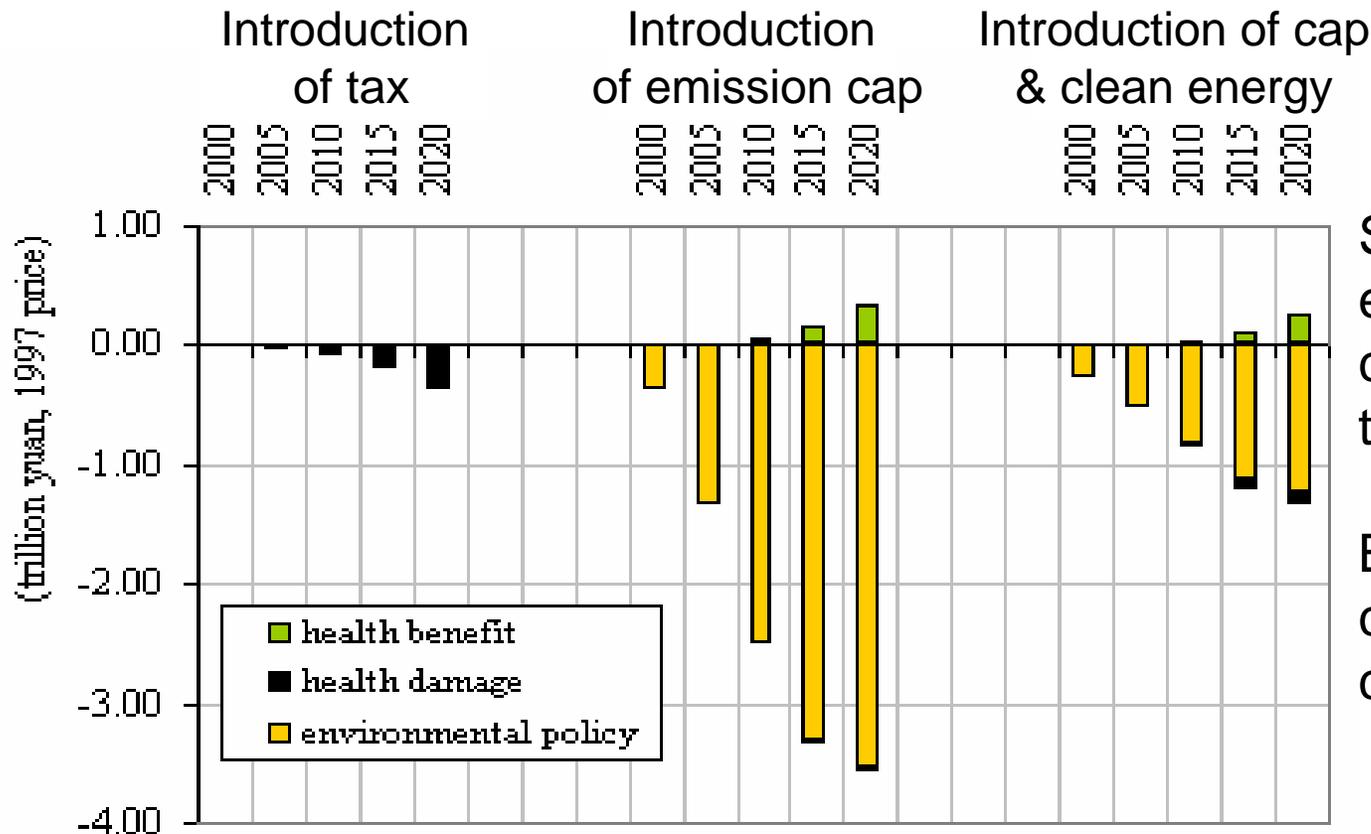


Health impacts on national economy (reference case)



Application of IAM

(1) Air pollution and health impact assessment



Satisfaction of environmental constraints takes costs.

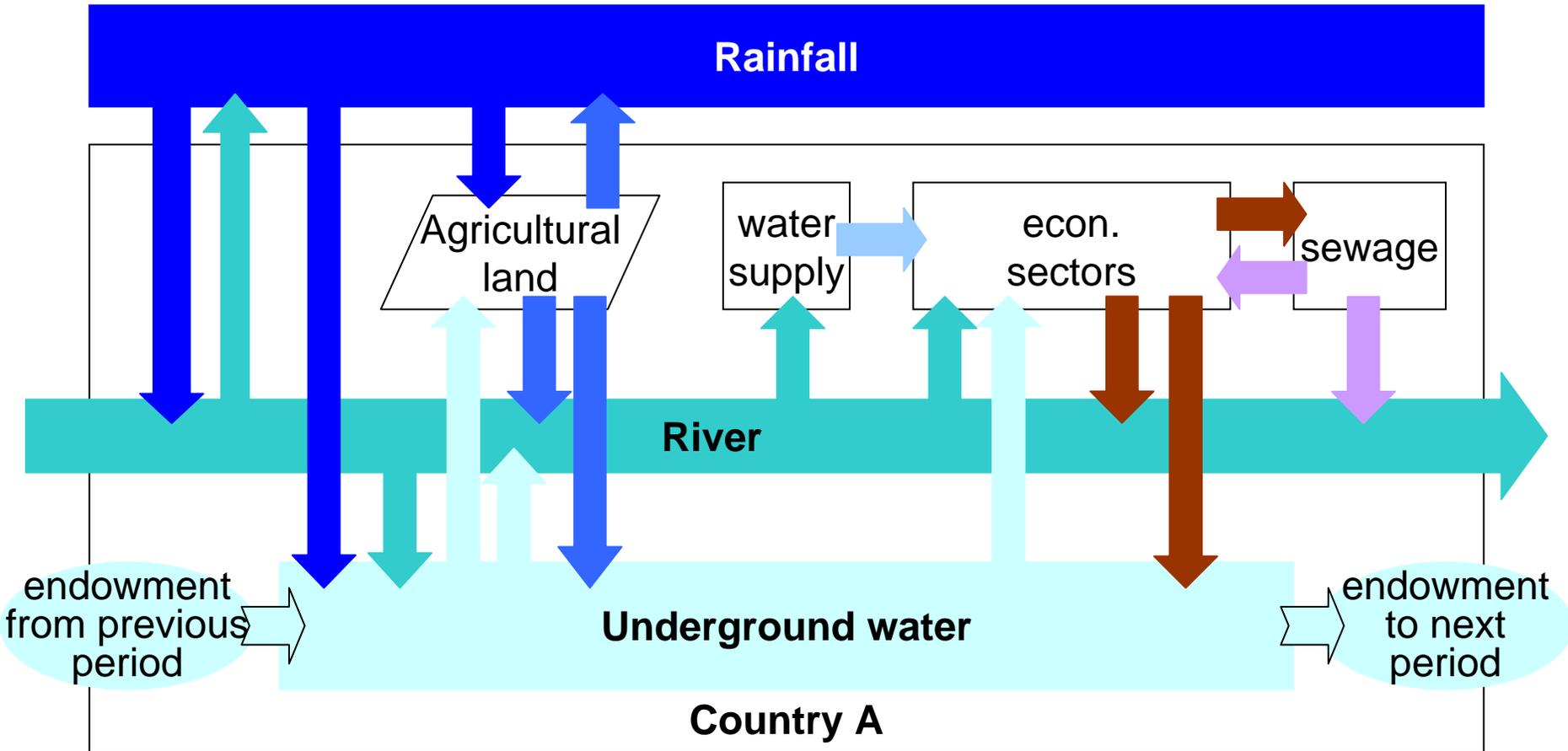
But the appropriate countermeasures can mitigate costs.

GDP loss by air pollution reduction and mitigation by policy



Application of IAM

(2) introduction of water

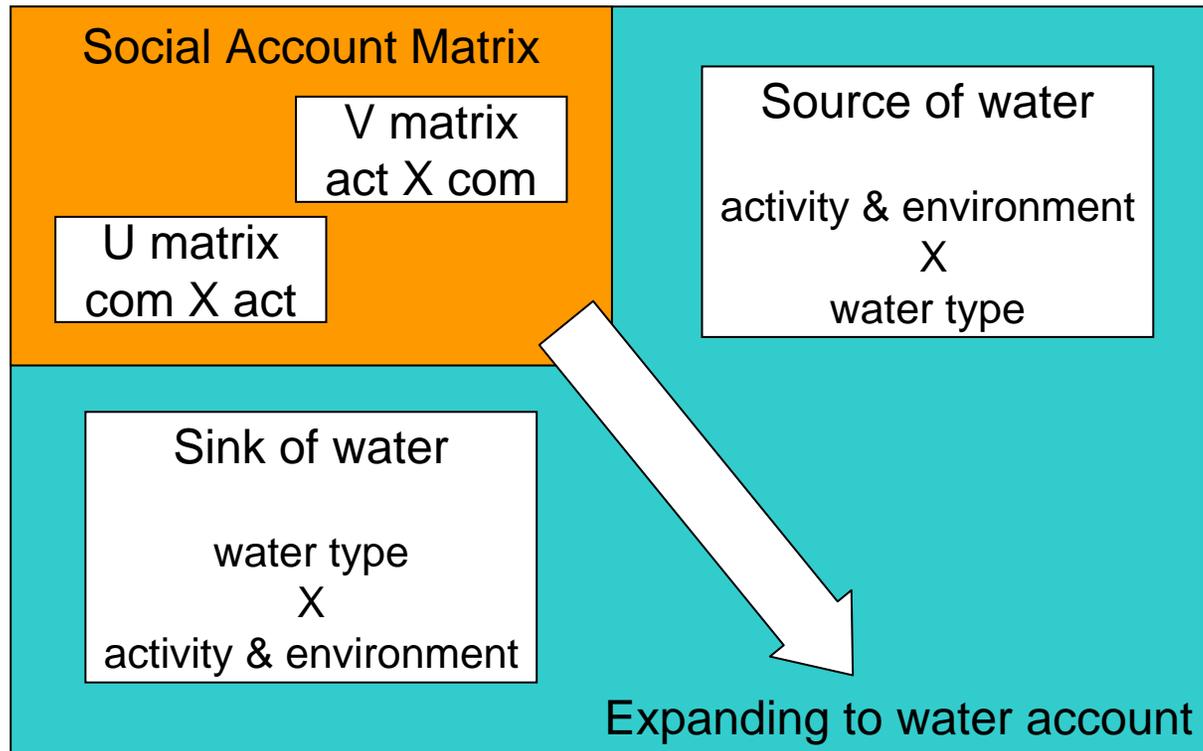


Conceptual water flow



Application of IAM

(2) introduction of water

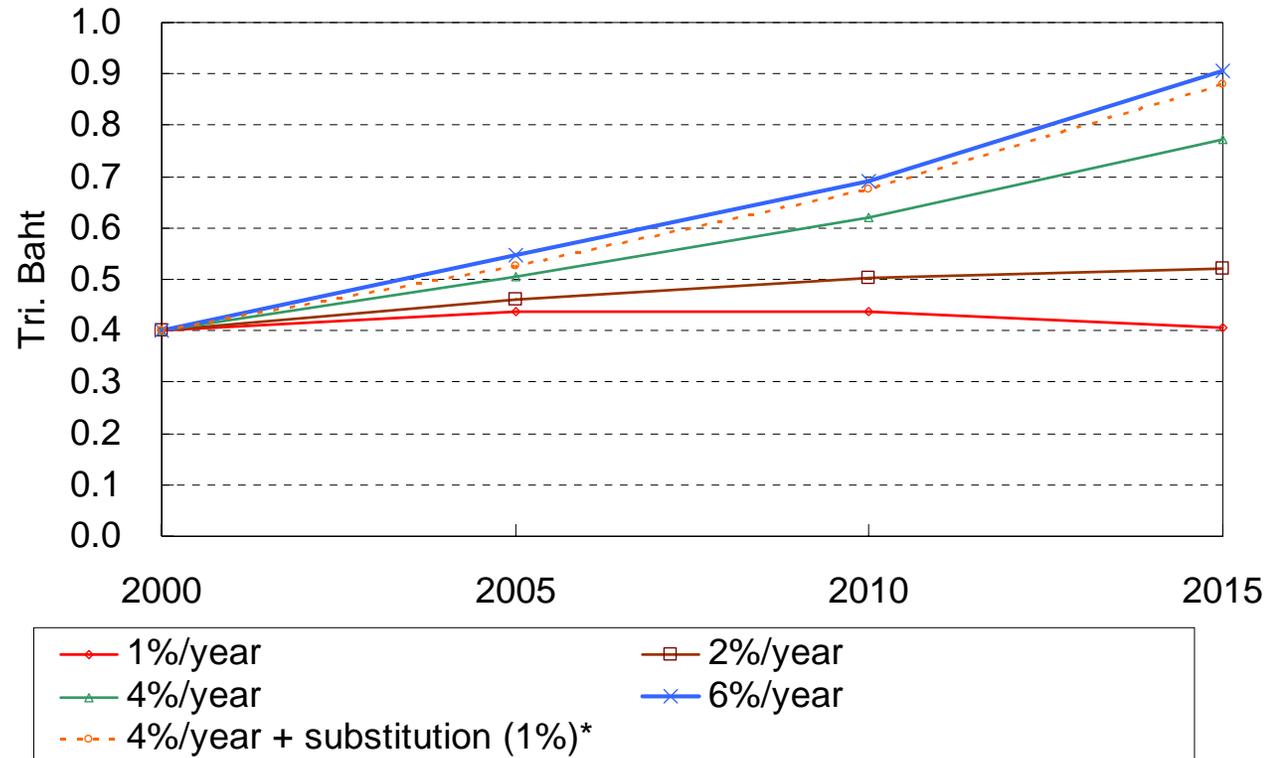


- Expansion of economic account to water account
- Application to macro economy in Thailand based on many assumptions



Application of IAM

(2) introduction of water



Preliminary result: Agricultural production in Thailand
(without climate change impacts)

*: 1% of rainfall water to agricultural land is substituted to water in river

→ Source/sink connected to river are affected, when water in river is not sufficient.



Features of IAM model for APEIS

IAM for APEIS can

- introduce the environment as a physical unit.
- assess direct/Indirect effects of environmental burdens or countermeasures to protect the environment.
- link to other bottom-up type models and SDB (Strategic DataBase), and then effectiveness of specific technology or policy can be assessed.

