Workshop on Mobility

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Role of Mobility for Sustainable Society

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Contents

- (1) Background
  - Why is "Sustainability Science " necessary?
- (2) Research necessary today?
- (3) Research challenges!
  - Research that Integrates the Three Societies

Background(1)

- **IPCC 4th Assessment Report(2007) and Nobel Prize**
- **Discussion about "cause" is over.**

- **Age of Action**
- **Co-benefit**

Background(2)

- Global Political Processes

● G8 Summits

- 2007 Heiligendum :
- 2008 G8 Hokkaido Tooyako Summit
- G8 University Summit (Japan)

: Climate Change and Sustainability

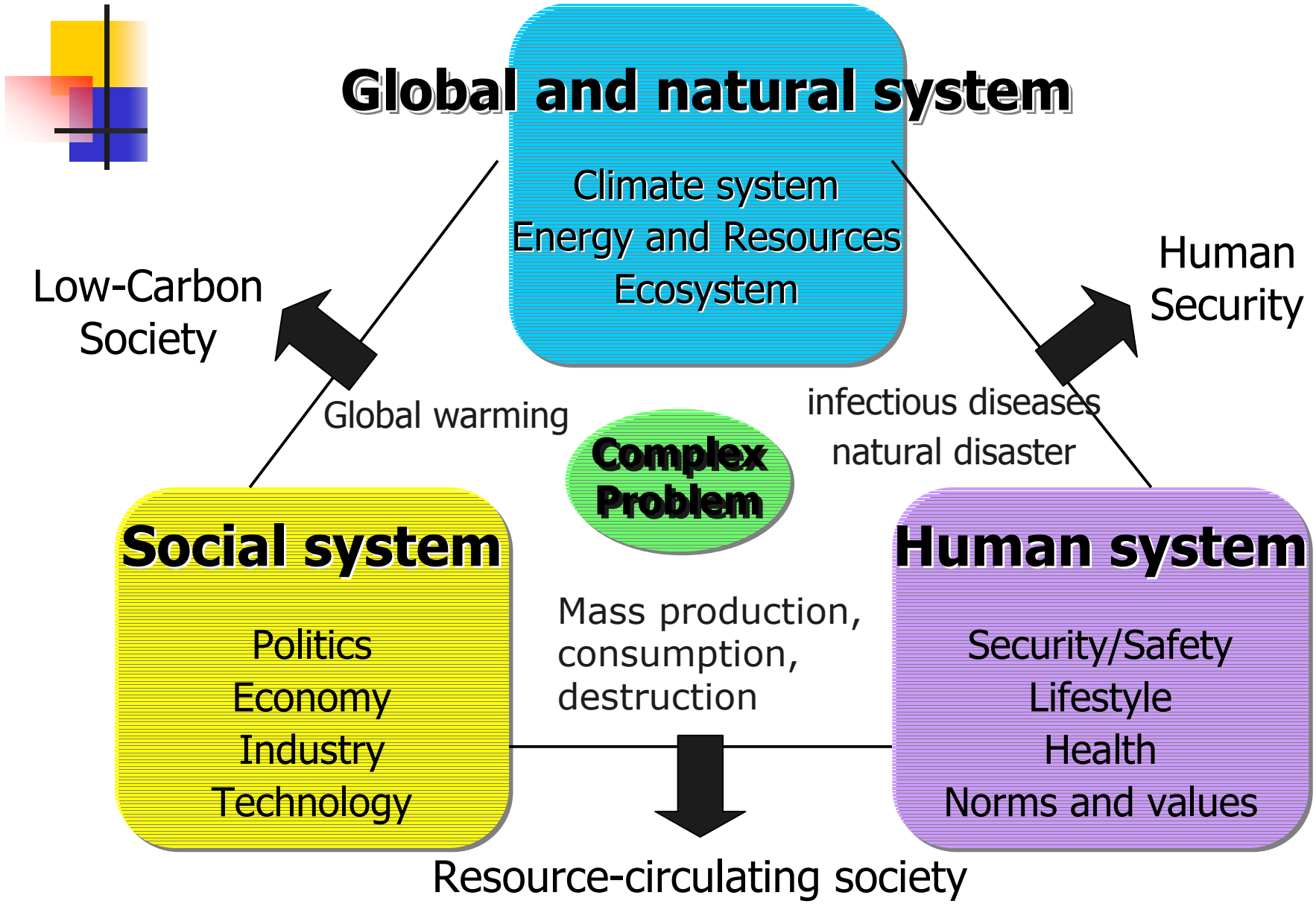
● UNDP Human Development Report 2007/2008

- - Combating climate change demands that we place ecological imperatives at the heart of economics.

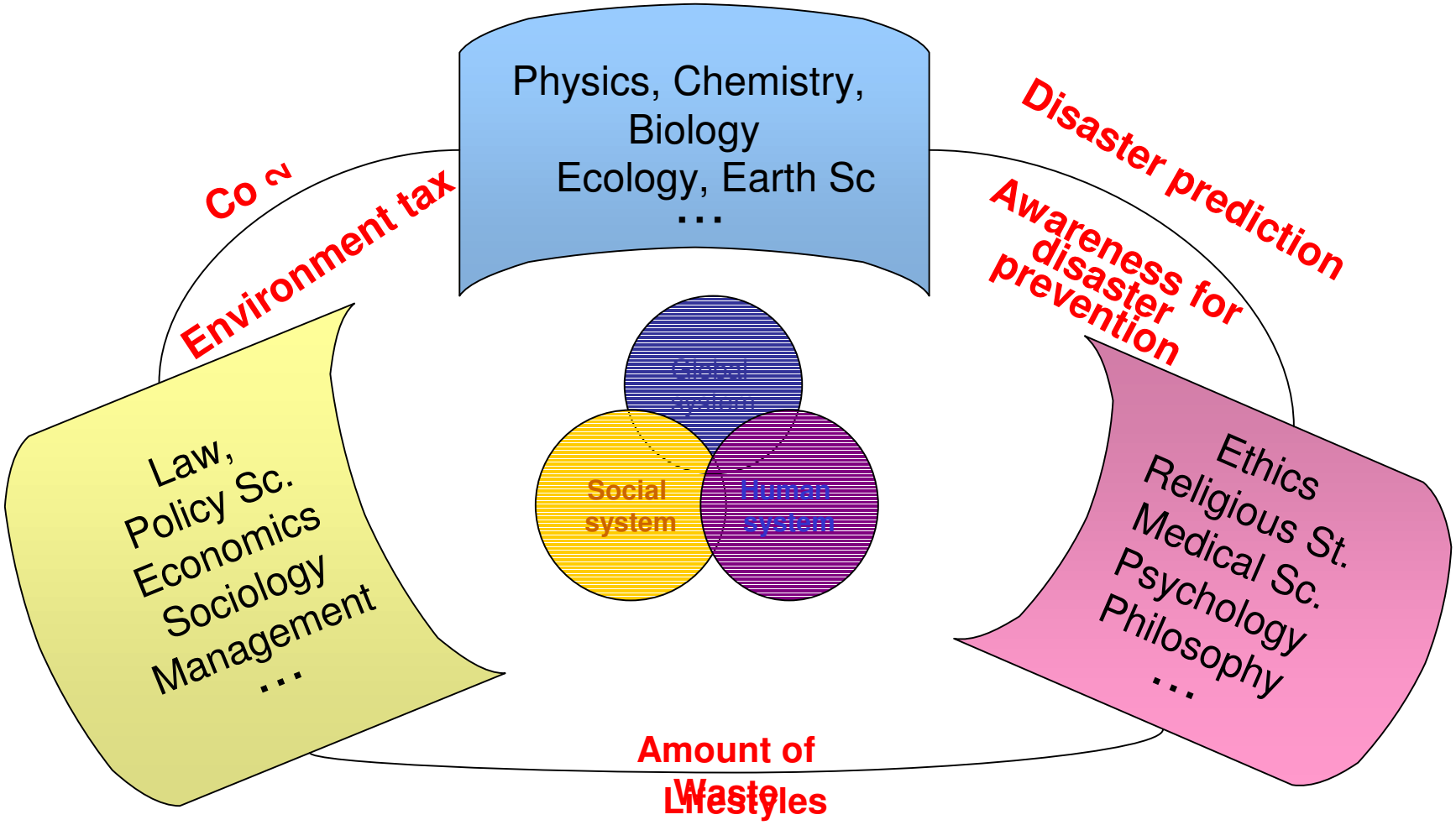
Action is required!

- Turning Point
- A whole spectrum of issues should be considered!
- Structuring issues and actions!
- More accurate prediction and assessment of impacts due to actions is inevitable!
- Establish a concept of evaluation!

Linkages among three systems



Transdisciplinary approach



Sustainability Science fuses
Natural and Social Sciences with indicators

Example:Controversy of Biofuel

Benefits

- Renewable Energy
  - Carbon Neutral
  - Prevention of Air Pollution
  - Energy Security
  - Development of Rural Area

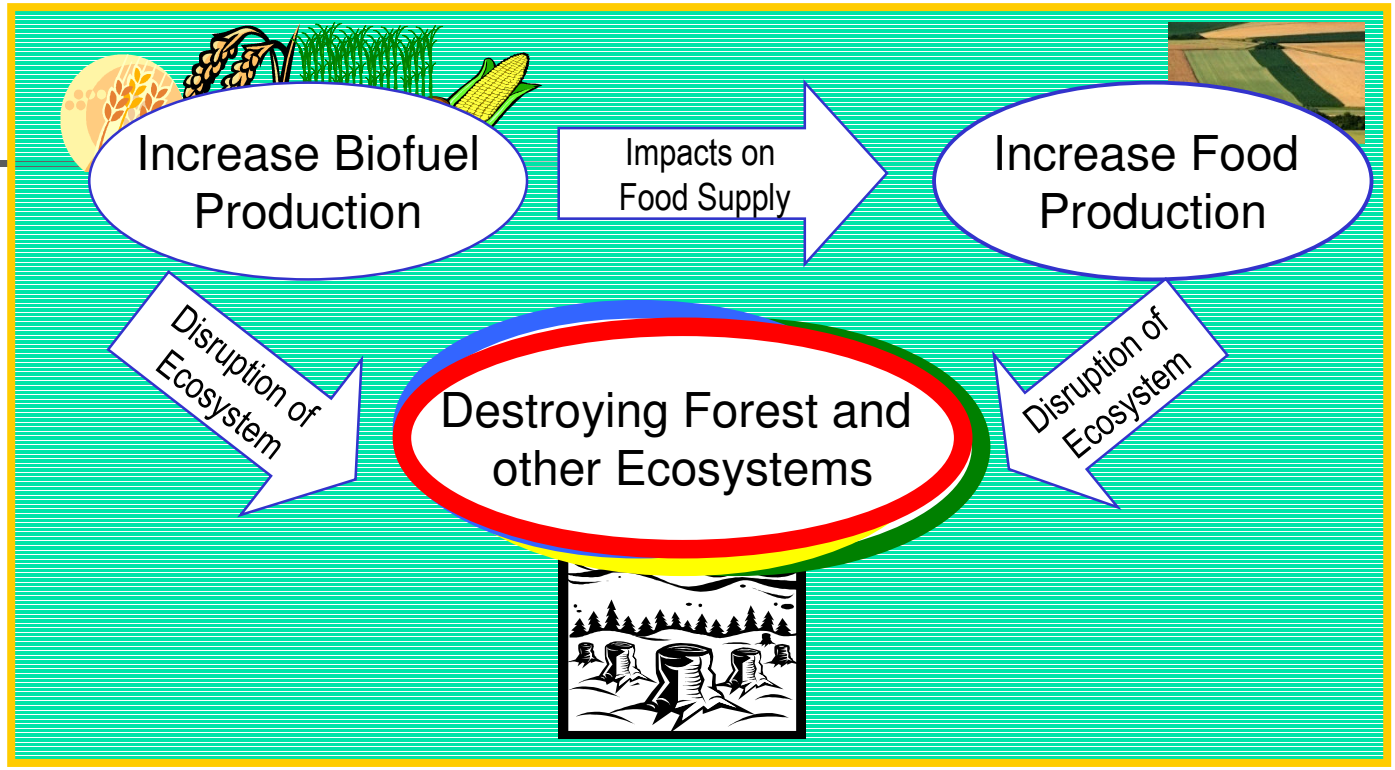
Criticism

- Real GHGs Reduction (LCA) ?
- Shortage of Food Supply and Rising Price
- Water Shortage, Water Pollution
- Tropical Forest Destruction

Greenpeace

Increase of BioFuel Production
Need for Comprehensive and Interdisciplinary Approach

Global Issue



New North-South Issue

Biofuel-producers importing biofuel

Risking Food Supply

Destroying Ecosystems

Exacerbate poverty and hunger in developing countries

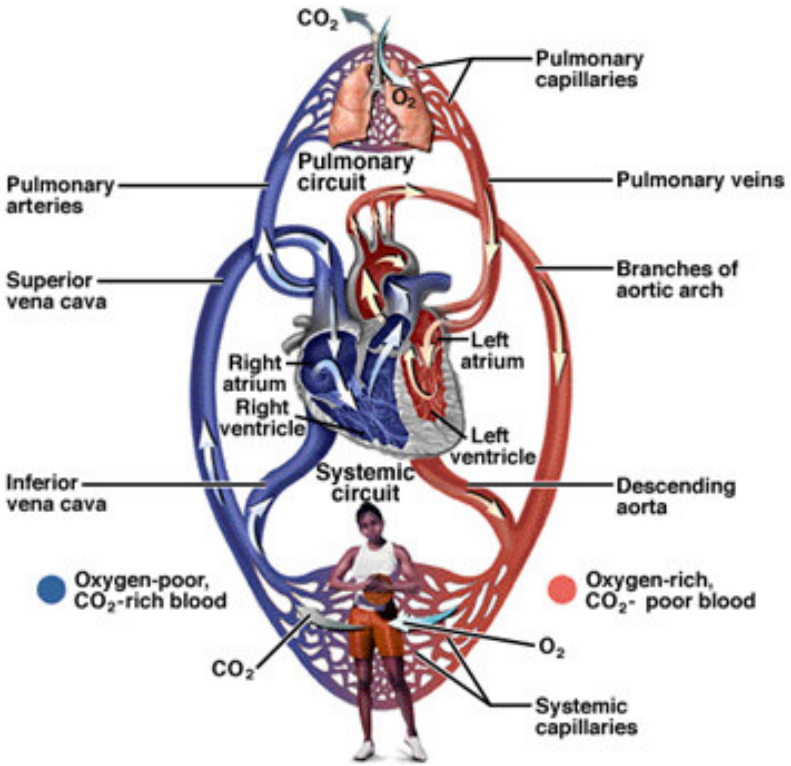
2. Necessary research for mobility!

Role of Mobility(1)

- Define a spatial-scale and a temporal-scale
- Globalization is due to “development of transportation method and conservation technology”
- For economy, transportation cost is very important!

Role of Mobility(2)

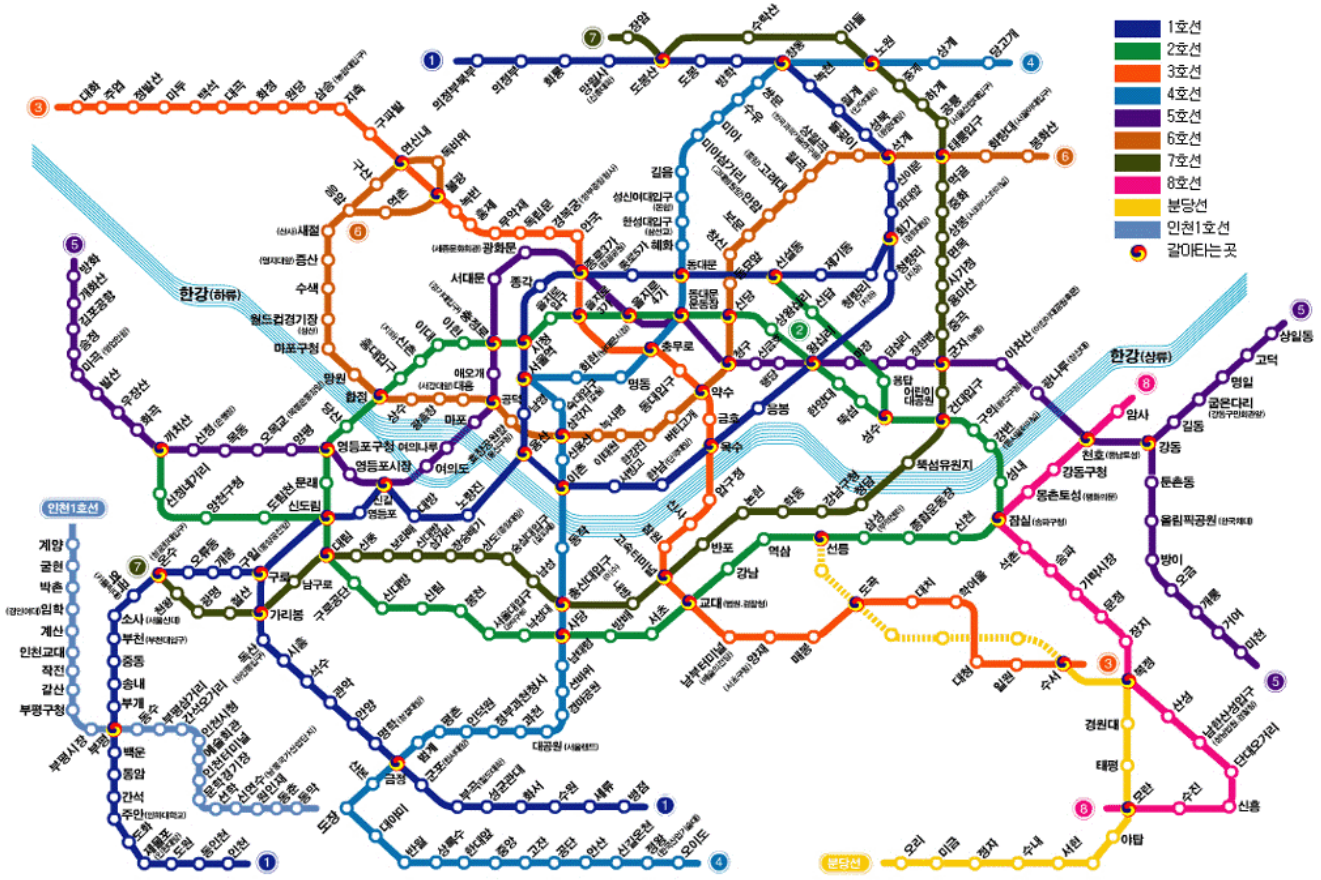
- Transportation of energy, materials and information is an artery(red) of our society.
- Transportation of wastes is a vein(blue) of our society.
- Both are critical



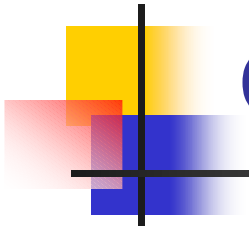
Innovation about components!

- We tend to concentrate in parts, such as car,train, ship ,airplane and so on.

Total system of transportation is necessary and critical!



What is moving? What are we carrying?



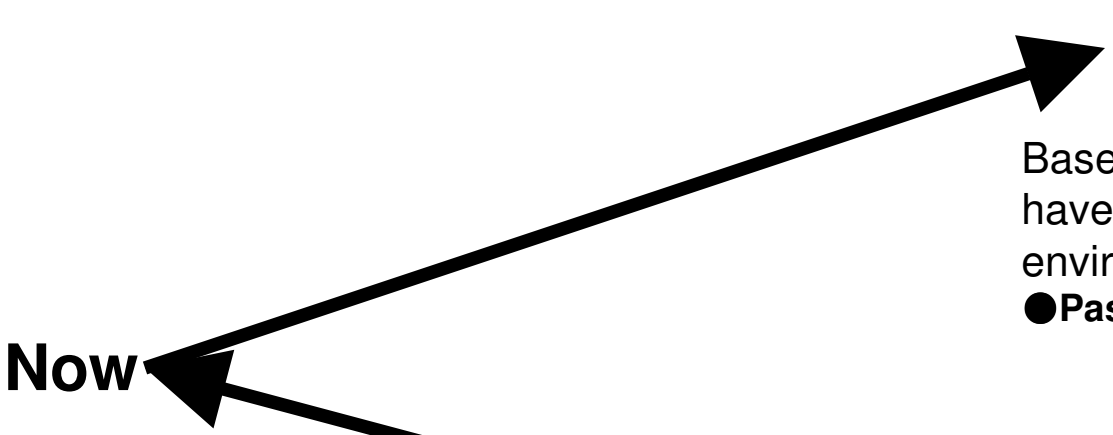
- People
- Materials
- Energy
- Information
  - Usually, communication is in charge for information, but?
  - Z.B., a book!

Way of thinking is necessary!

- System or Totality
- Pathway and Backcasting
- Value or evaluation method
- Many stake-holders and trade-off.

Ultra-Long Term Projection and Scenario

Forecasting VS. Backcasting



Forecasting (BaU)

Based on the dominant trends that have already contributed to current environmental problems

●**Passive**

Integrated Assessment model

Is necessary!

Backcasting

Involving working backwards from a particular desirable future end-point to the present in order to determine the physical feasibility of that future and what policy measures would be required to reach that point.

●**Proactive**

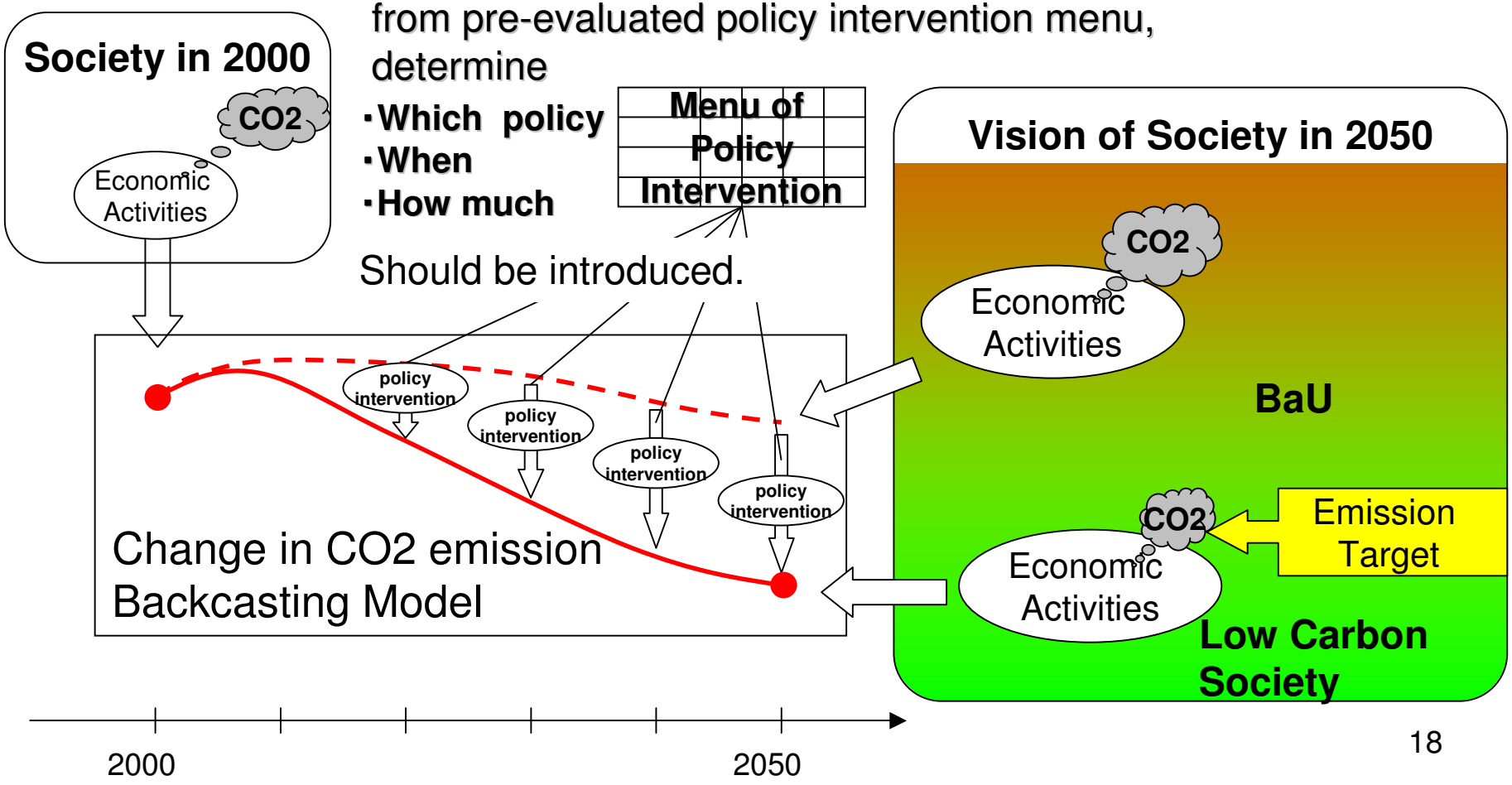
Low Carbon Society Scenarios : Backcasting Model

In order to achieve Low Carbon Society in 2050, from pre-evaluated policy intervention menu, determine

- **Which policy**
- **When**
- **How much**

Menu of Policy Intervention

Should be introduced.



Evaluation criteria

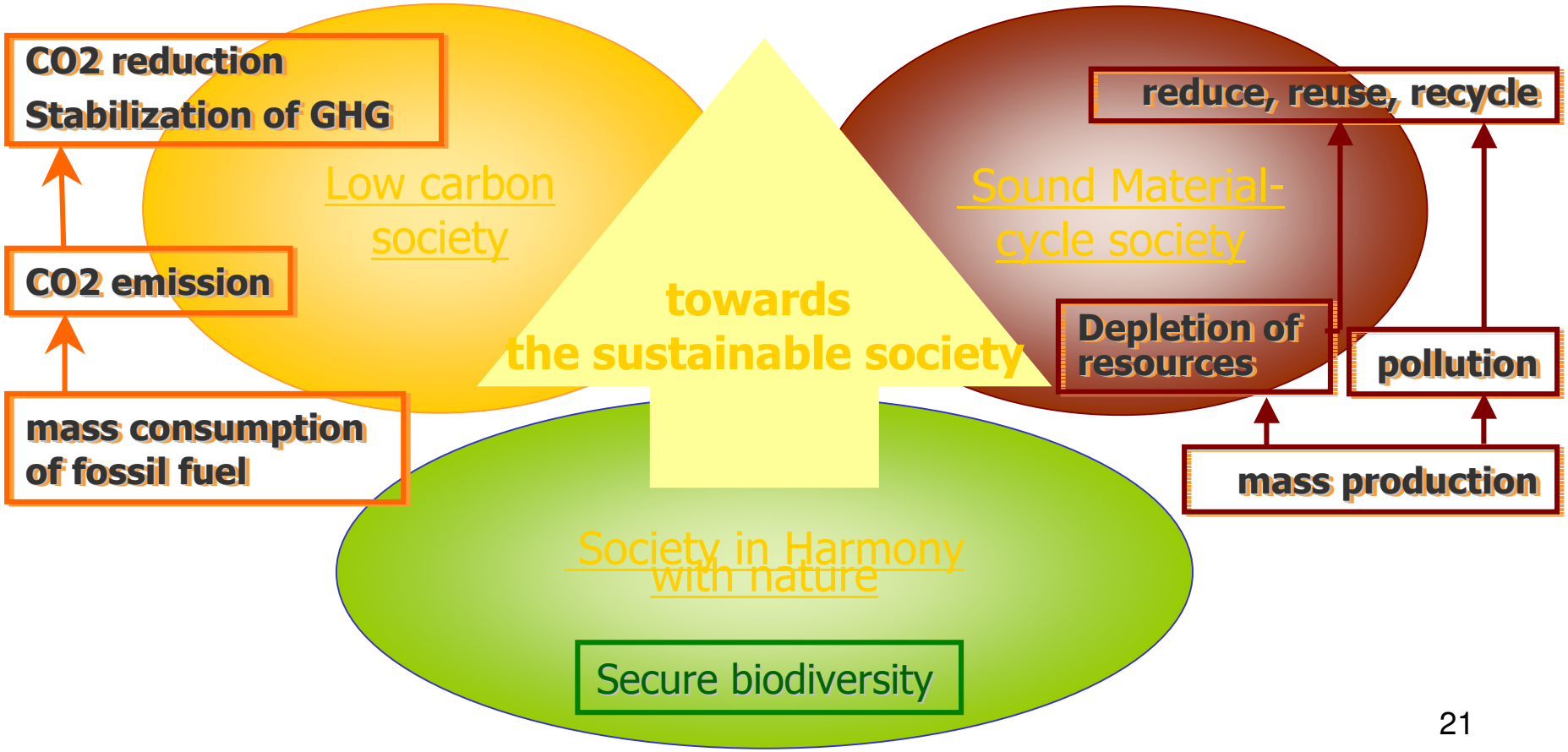
- Evaluation
- What is criteria?
- Cost performance and Social welfare
- Total thinking is necessary!

3.Research challenges

- Structuring Knowledge
- Networking
- Forecasting and Backcasting Approach
- Integration of Three Societies
- Measures for Sustainable Society
- Action!

Integration of Three Societies

Research focus on the linkages between
Low carbon society,
Sound material-cycle society and
Society in harmony with nature



Journal publication

Hiramatsu,A.,N.Mimura and A.Sumi,2008: A mapping of global warming research based on IPCC AR4, Sustainable Sciences,3.

Sustain Sci
DOI 10.1007/s11625-008-0058-9

ORIGINAL ARTICLE

A mapping of global warming research based on IPCC AR4

Ai Hiramatsu · Nobuo Mimura · Akimasa Sumi

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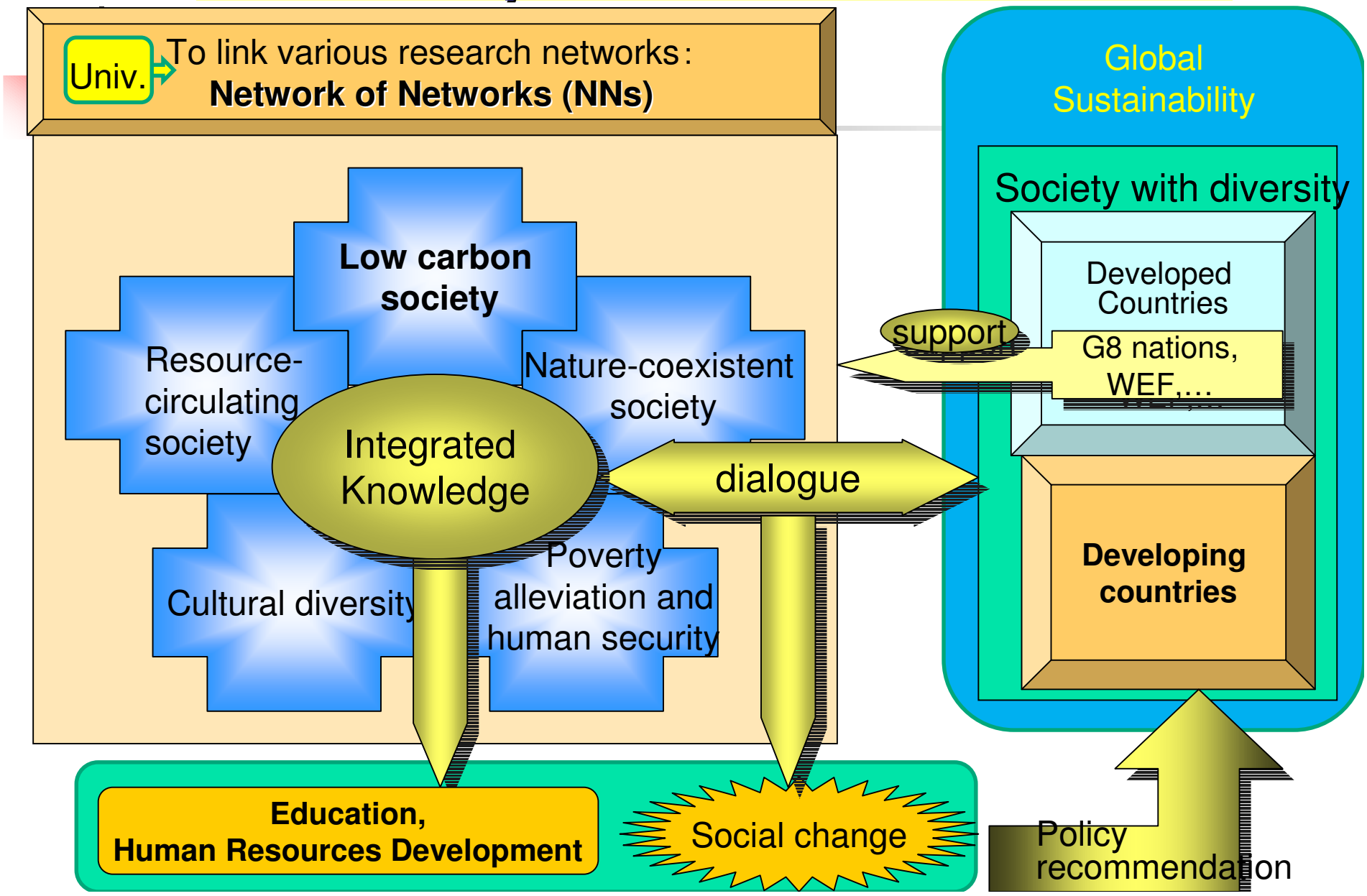
How to make action?

- Networking
- Globalization and Diversity
- Network of Networks

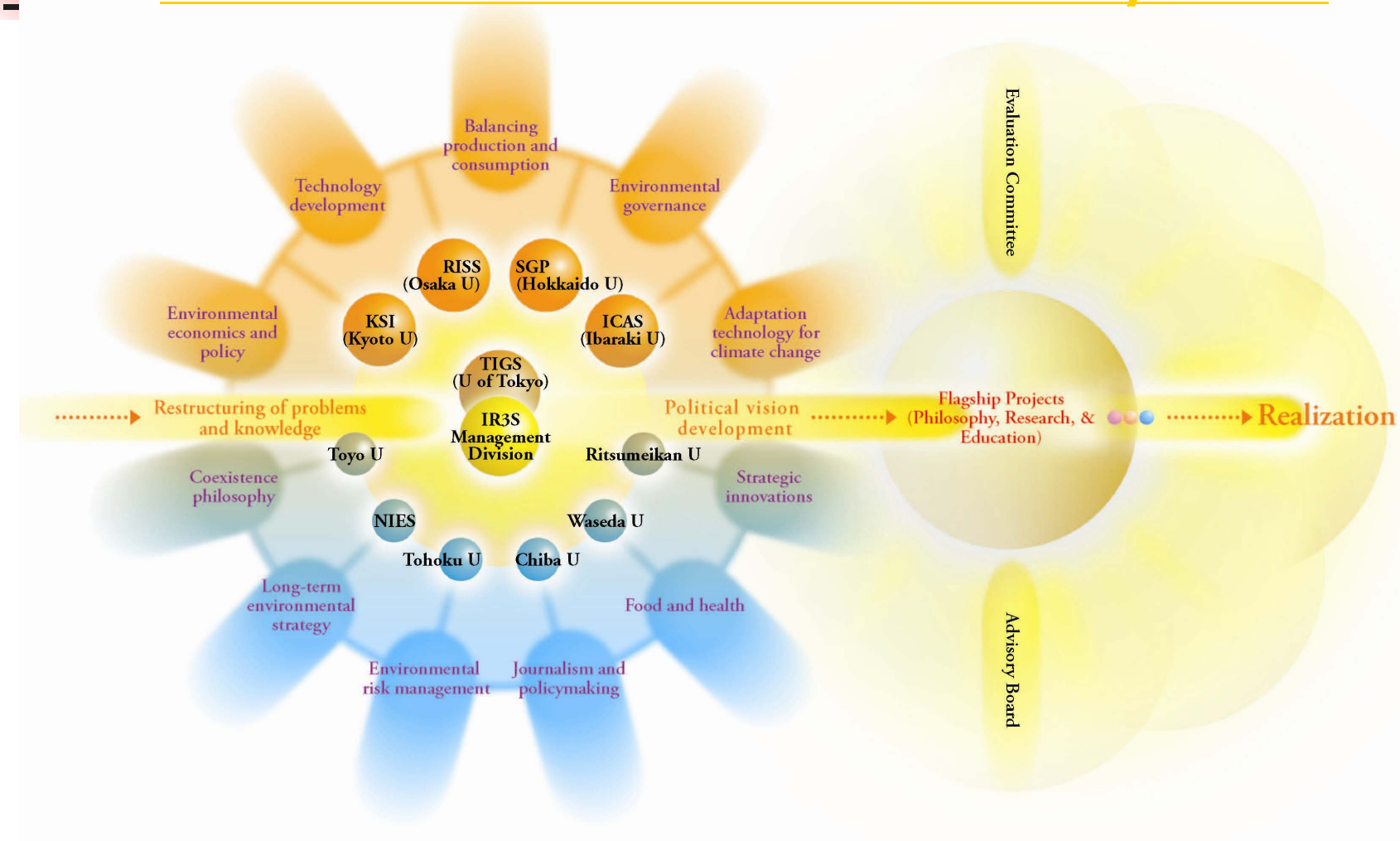
- Outreach,
- Relationship to Politics!?

Knowledge Innovation for Global Sustainability

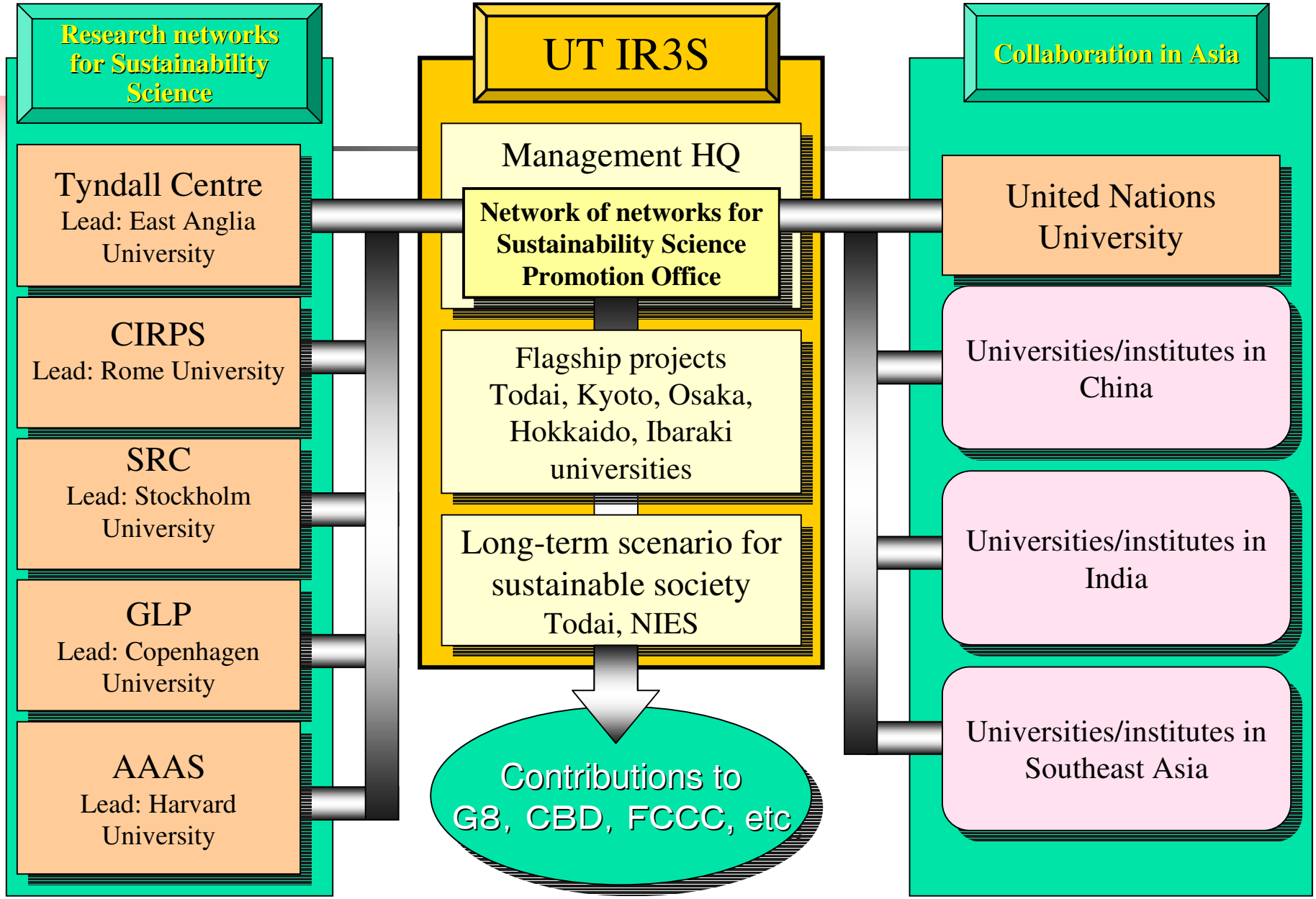


UT Integrated Research System for Sustainability Science (IR3S)

Research Network Alliance for Sustainability Science



Establishing Strategy for Global Sustainability in the 21st Century through collaboration amongst international research networks




Thank you