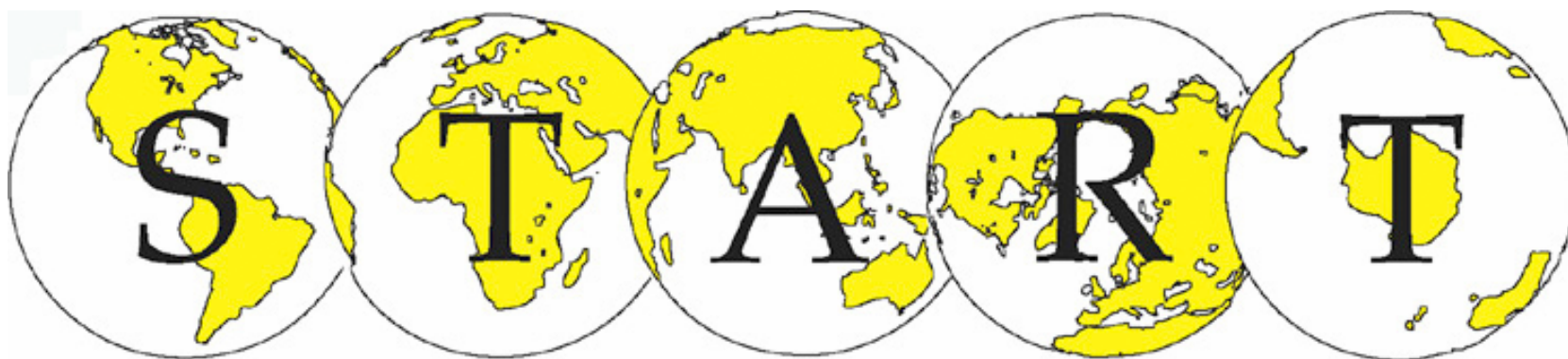




I H D P • I G B P • W C R P

International START Secretariat
2000 Florida Avenue, NW Suite 200
Washington, DC 20009
Tel. +1.202.462.2213
Fax +1.202.457.5859
Email: start@agu.org
www.start.org

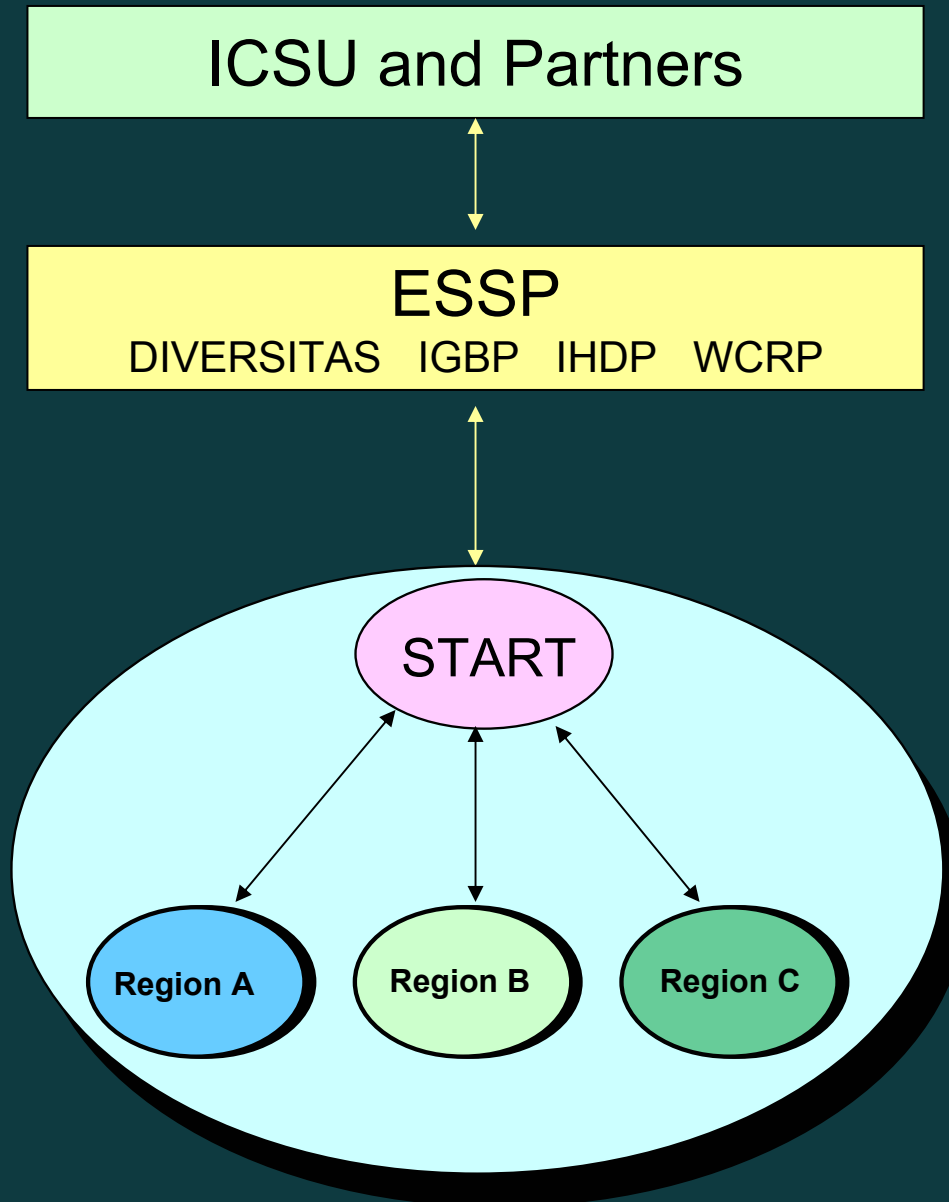
International Conference on Energy and Sustainability Science

16-19 December 2003

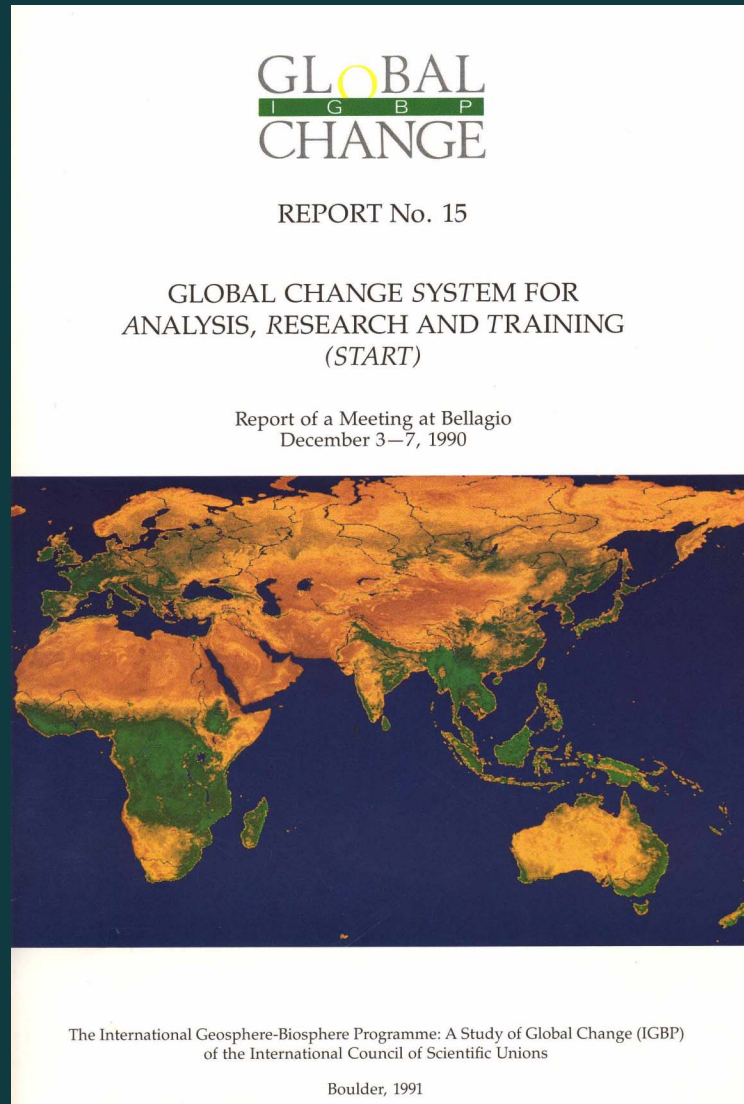
Tokyo, Japan

Sponsored by the Science Council of Japan

START Organizational Relationship



Bellagio Report



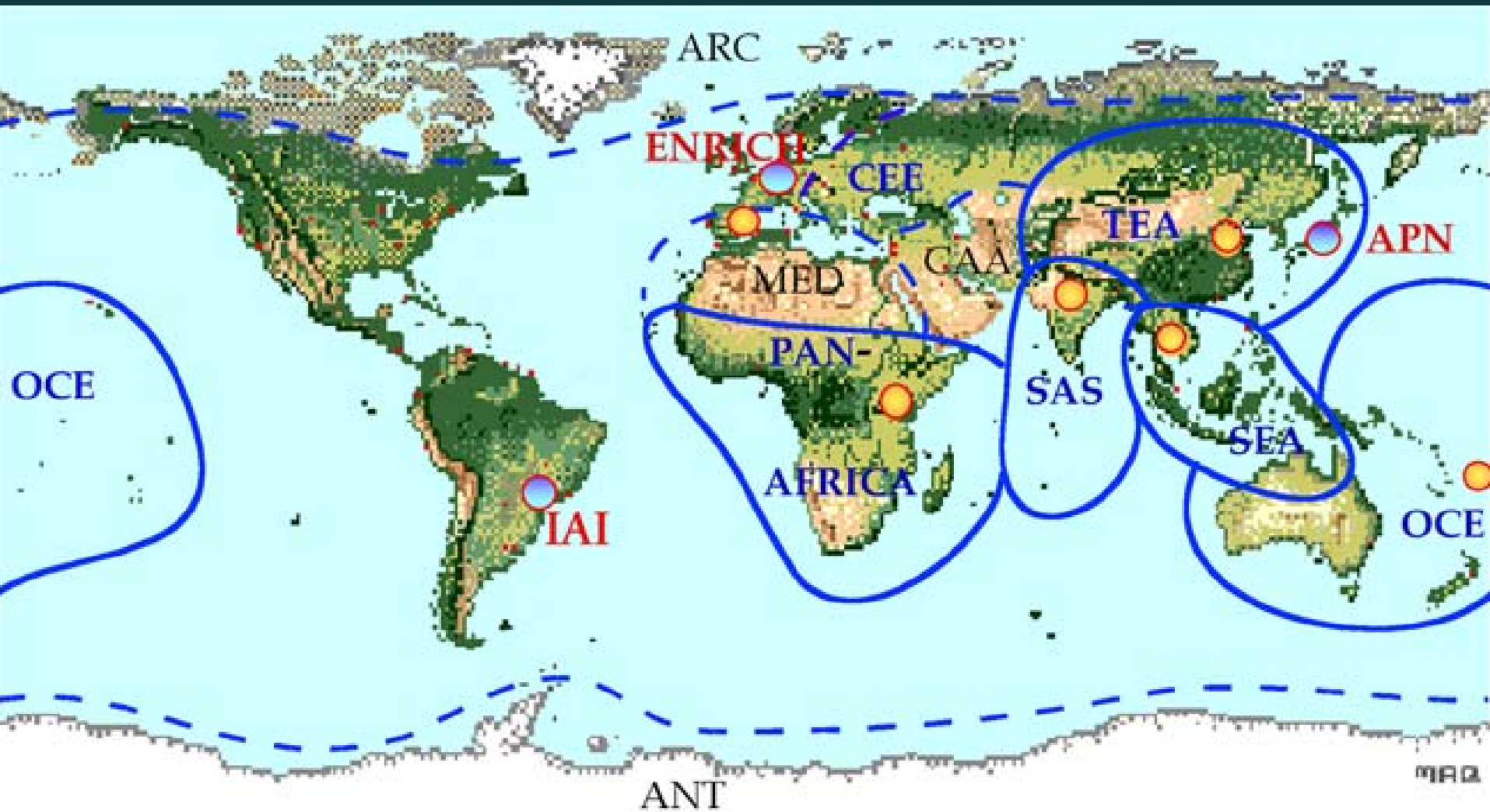
1990 Bellagio Report



START Mission

- To develop regional networks of collaborating scientists and institutions:
 - to conduct research on regional aspects of global change
 - to assess the causes and impacts of regional global change, and
 - to provide relevant information to policy makers and governments
- To enhance scientific capacity in developing countries by strengthening and connecting existing institutions, by training global change scientists and by providing them with improved and enhanced access to data, communication technology and research results.
- To mobilize the resources required to augment existing global change scientific capabilities and infrastructure and activities in developing countries.

START Regional Networks



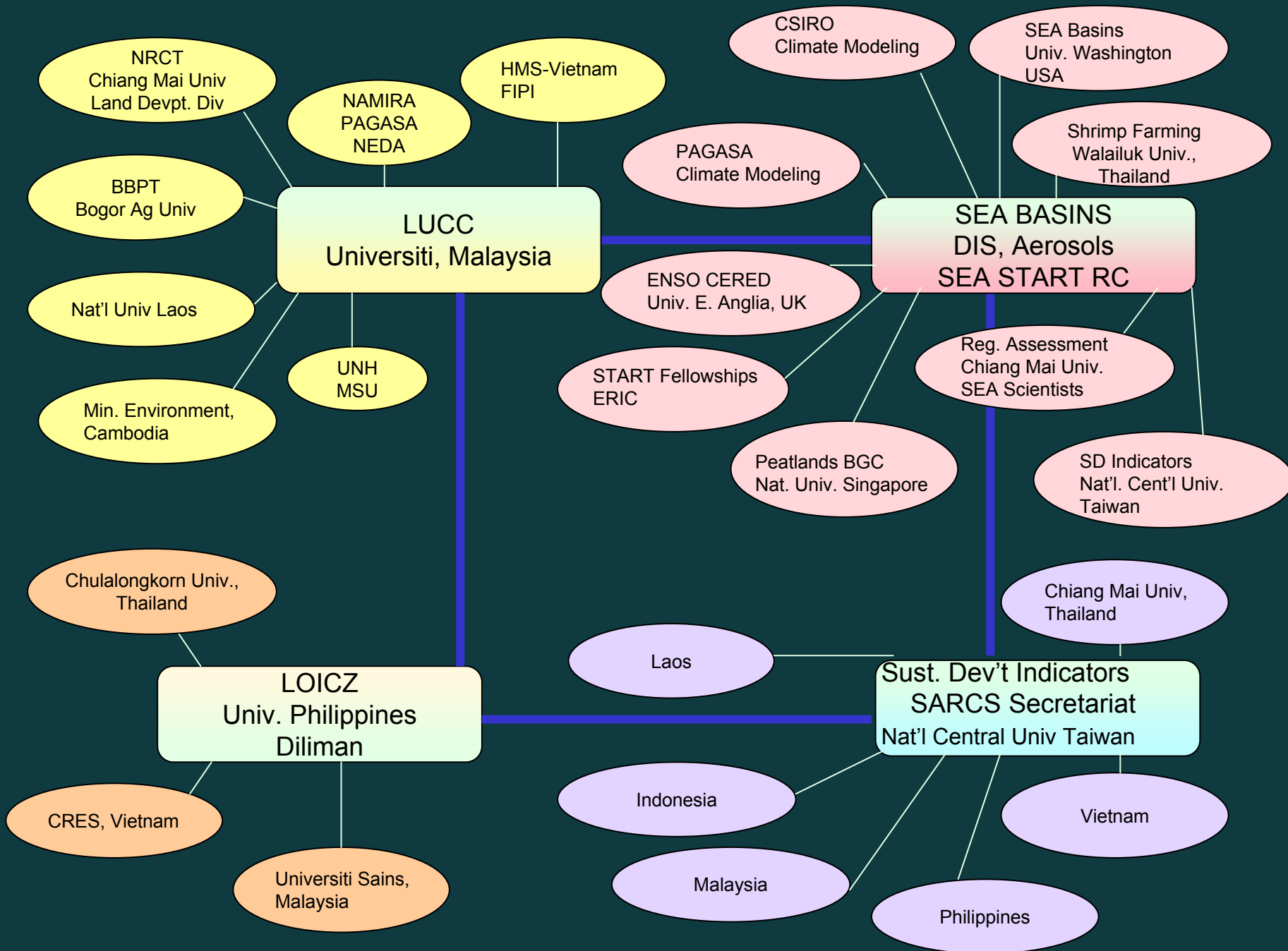
Portfolio of START Activities

- Collaborative Research
- Capacity Building
- Assessments

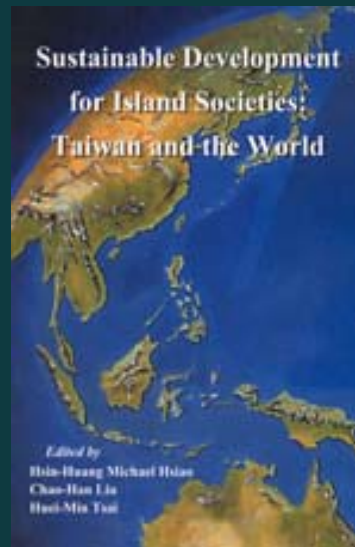
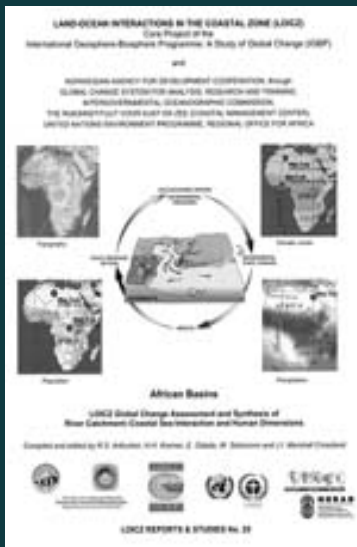
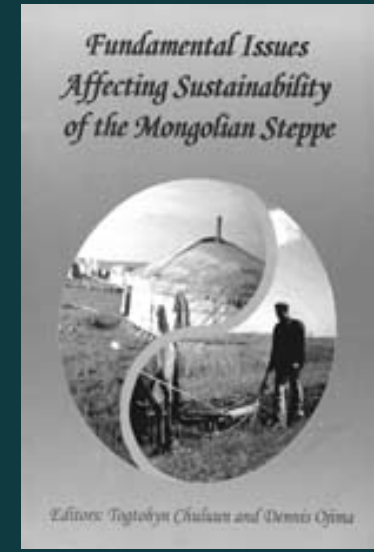
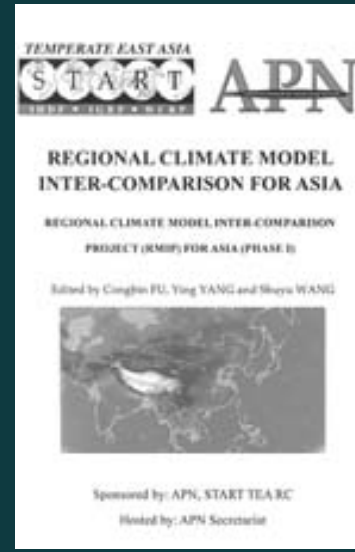
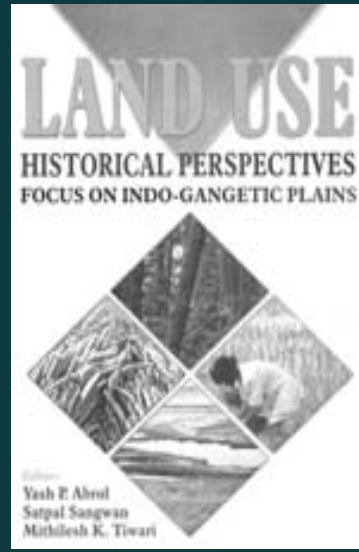
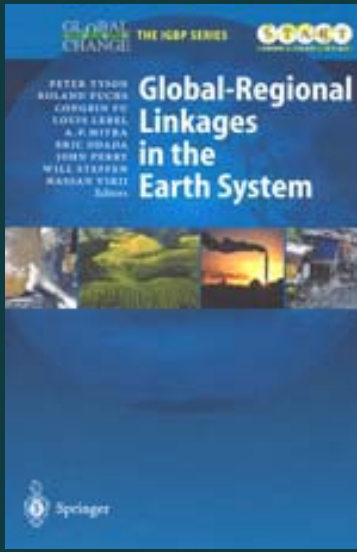
Collaborative Research Activities

Over 30 ongoing collaborative research projects

- Land Use Change and its Impacts on Terrestrial Ecosystems
- Regional Climate Variability and Change
- Regional Changes in Atmosphere
- Coastal Zones
- Global Change and Water Resources



Selected Publications



Capacity Building

- Modalities
- Young Scientists Conference
- Packard Institutes

Modalities of Capacity Building

- Regional science planning
- Collaborative research networks
- Research workshops
- Short term Fellowships
- Visiting scientists & overseas affiliations
- Visiting lecturers
- Dissertation / long term fellowships
- Small grants program

International Young Scientists' Global Change Conference

16-19 November 2003

Third World Academy of Science/ICTP, Trieste, Italy

Organized by START on behalf of ESSP
Partners: APN, IAI, DGIS, ICSU & USGCRP

Conference goal was to identify the future global environmental change leaders and to engage them in the GEC programs

>1000 Applications

640 Applications chosen for review

84 Applications selected

Keynote presenters: Prof. Paul Crutzen, Dr. Kathy Hibbard, Sir John Houghton, Dr. Roberto Sanchez and Dr. Will Steffen



Advanced Institutes on Global Environmental Change

Sponsored by the David & Lucille Packard Foundation

Institute 1: Climatic Variability and Food Security

(8-26 July 2002, IRI, Columbia University, New York)

- Status: Follow-up stage
- 18 Research Projects completing:
6 Africa + 4 S. America + 4 S. Asia + 3 S.E. Asia + 1 E. Asia

Institute 2: Urbanization, Emissions and the Global Carbon Cycle (also sponsored by IAI, endorsed by IHDP/IT & GCP/ESSP)

(4-22 August 2003, NCAR, Boulder, Colorado)

- Status: Follow-up stage
- 16 Research Projects beginning:
2 Africa + 4 S. America + 4 S. Asia + 4 S.E. Asia + 1 E. Asia

Institute 3: Assessing Vulnerability to Global Change and Global Environmental Risks

(3-21 May 2004, IIASA, Laxenburg, Austria)

- Application phase completed
- 160 applications received

Assessments of Impacts and Adaptations to Climate Change in Multiple Regions and Sectors (AIACC)

Funded by GEF

Implementing Agency: UNEP

Co-Executing Agencies: TWAS and START

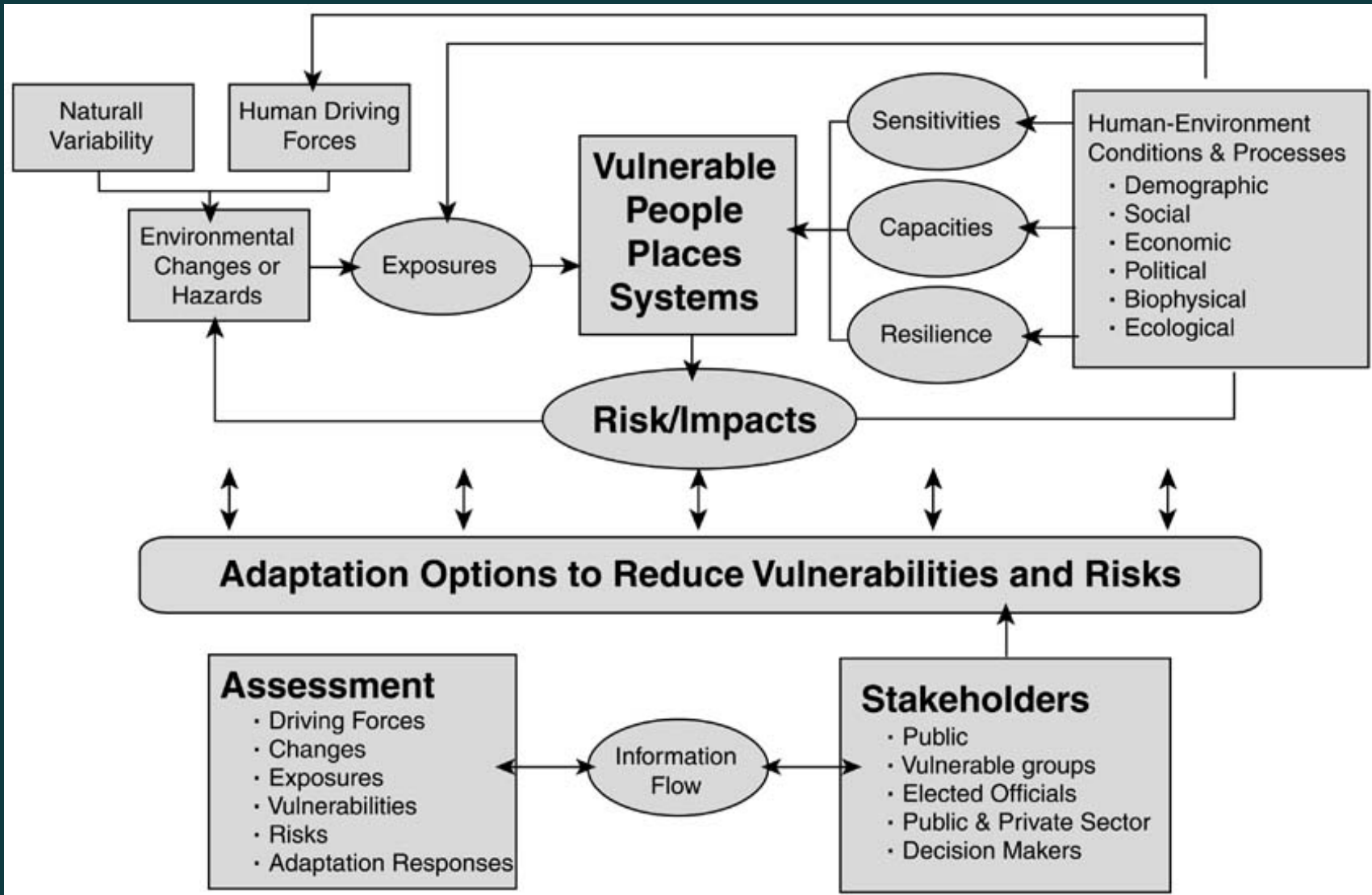
□ *Objectives*

- Advance scientific understanding of climate change impacts, adaptations and vulnerabilities in developing country regions.
- Build and enhance capacity in developing countries to investigate these issues and to participate in international scientific assessment activities.
- Communicate information for use in policy and management decisions.

□ *Activities*

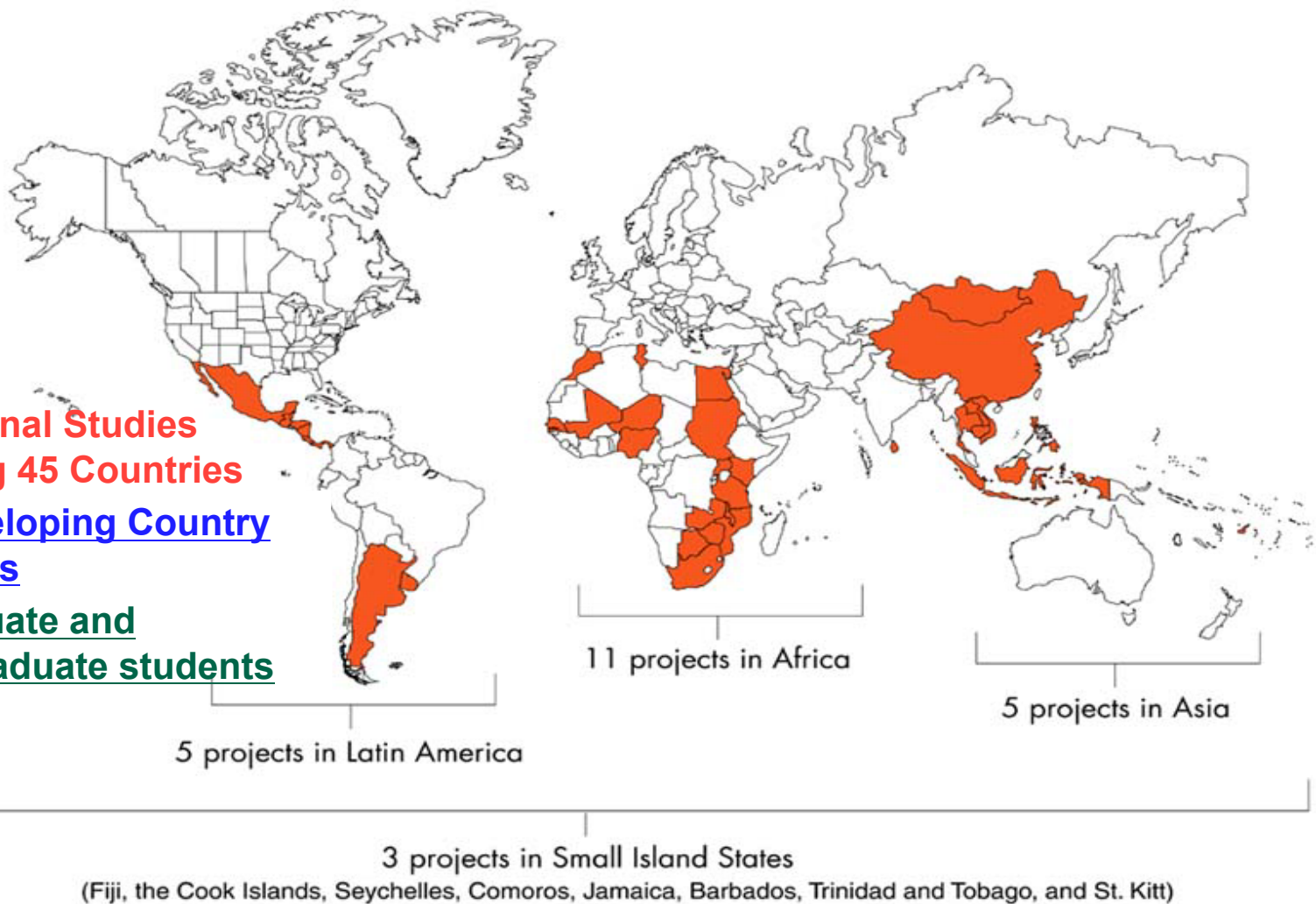
- Regional studies
- Training workshops & technical support for participants.
- Stakeholder participation

Global environmental change vulnerabilities, risks, and responses: A framework for second-generation assessment



Countries Involved in AIACC Regional Studies

**24 Regional Studies
Involving 45 Countries**
**235 Developing Country
Scientists**
**60 Graduate and
Undergraduate students**

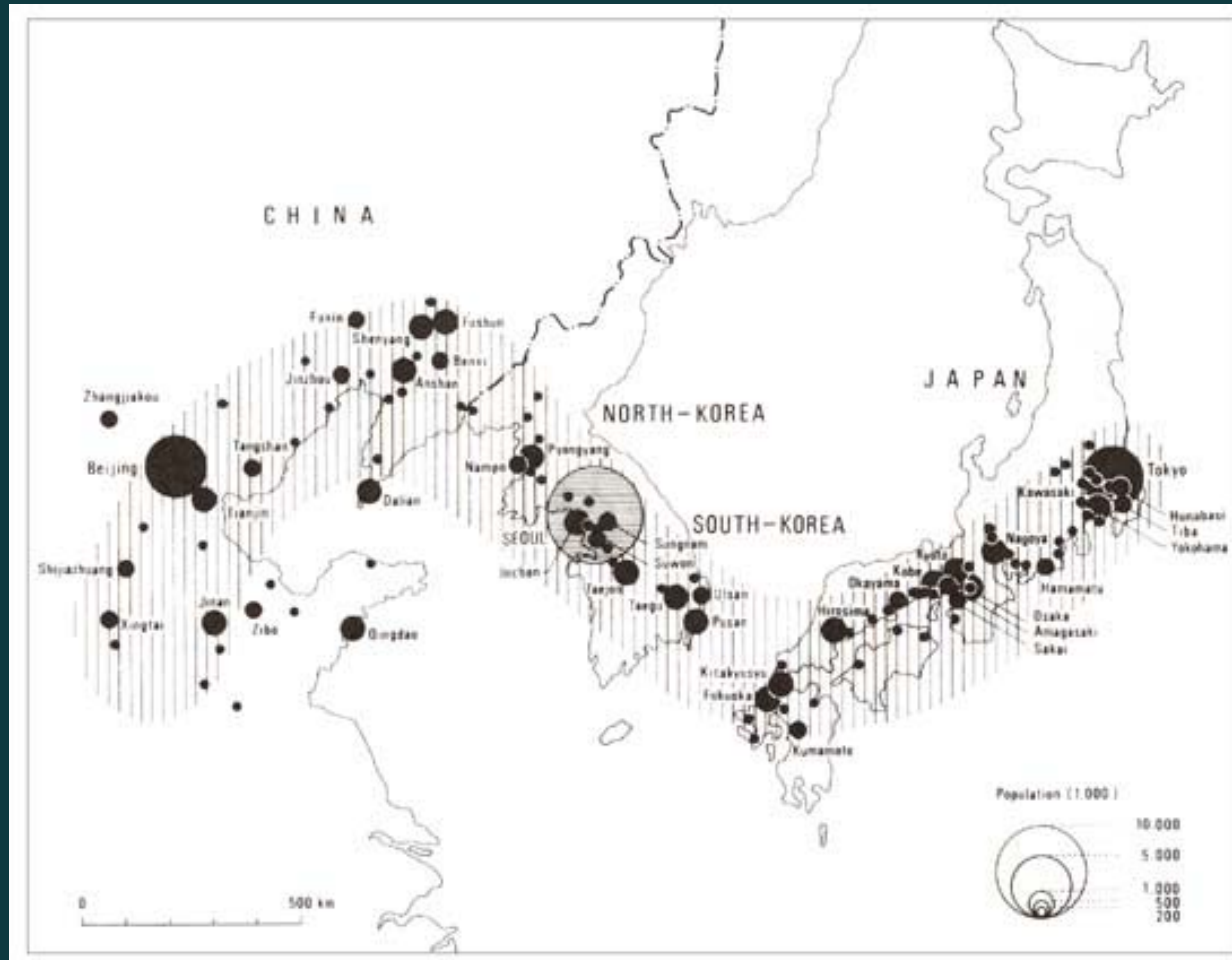


AIACC Regional Studies

Integrated Regional Studies of Monsoon Asia

- Region by 2030 will be home to 4.2 billion of 8.3 billion world population
- Most rapidly industrializing and urbanizing part of the world
- By 2020 one half of the population will reside in cities, many in giant mega-cities and urban corridors

Integrated Regional Studies of Monsoon Asia



Urban corridor from Beijing to Tokyo via Pyongyang and Seoul.
Source: F. C. Lo & Y. M. Yeung (eds.), *Emerging World Cities in Pacific Asia*

Integrated Regional Studies of Monsoon Asia

- **Region by 2030 will be home to 4.2 billion of 8.3 billion world population**
- **Most rapidly industrializing and urbanizing part of the world**
- **By 2020 one half of the population will reside in cities, many in giant mega-cities and urban corridors**
- **Evidence that land use has already led to weakening of summer monsoon**
- **Industrialization, urbanization, land use cover change and intensification will have serious consequences not only for regional environment but earth system environment**

Integrated Regional Studies of Monsoon Asia



**Transport of aerosols and
trace gases over and out of
East Asia**
(NASA 2001)

East Asia

Integrated Regional Studies of Monsoon Asia

- **What region will be like in 50 years?**

- Land use cover change/intensification
- Urbanization
- Industrial practices
- Energy production
- Dam construction

- **Consequences for the region**

- Land transformation
- Regional atmospheric composition
- Local eco-system structure and functioning
- Marine and coastal ecosystems
- Vulnerability assessment (food, water & health)

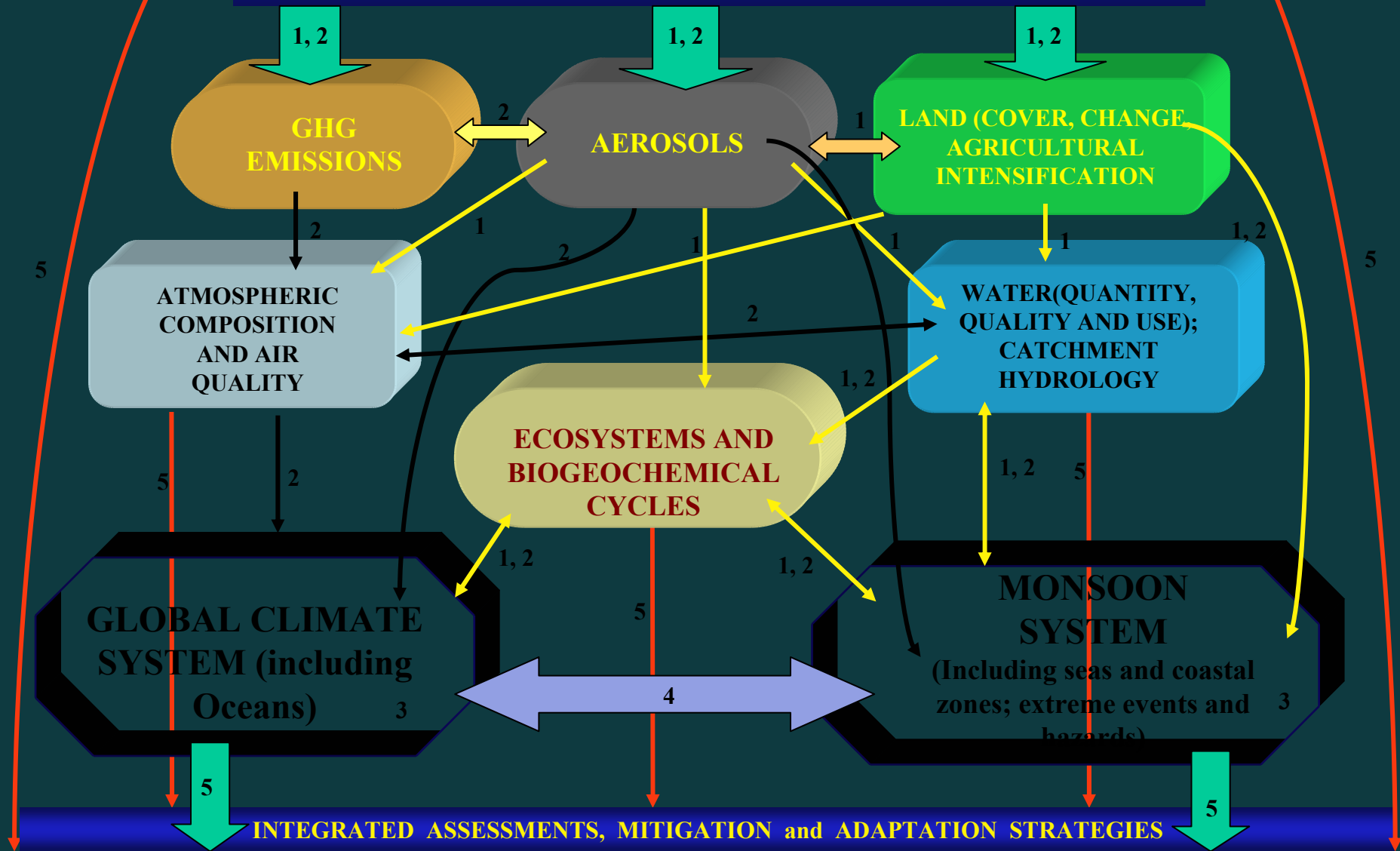
- **Consequences for the Earth System**

- Biogeochemical cycles
- Physical climate system
- Hydrological cycle

- **Effects of direct/indirect feedbacks on biosphere/sustainability of the region**

DEVELOPMENT PATHWAYS

POPULATION, CONSUMPTION, URBANIZATION,
INDUSTRIAL TRANSFORMATION, INSTITUTIONS



SUSTAINABLE DEVELOPMENT STRATEGIES

Proposed Project on Industrial Transformation in Asia

A collaboration between

IT/IHDP

START

UNU

NEDO

Industrial Transformation Project of IHDP (IT/IHDP)

Overarching goal of the IT research

***To explore pathways towards
de-coupling of the economic growth
from the related degradation of
the environment***

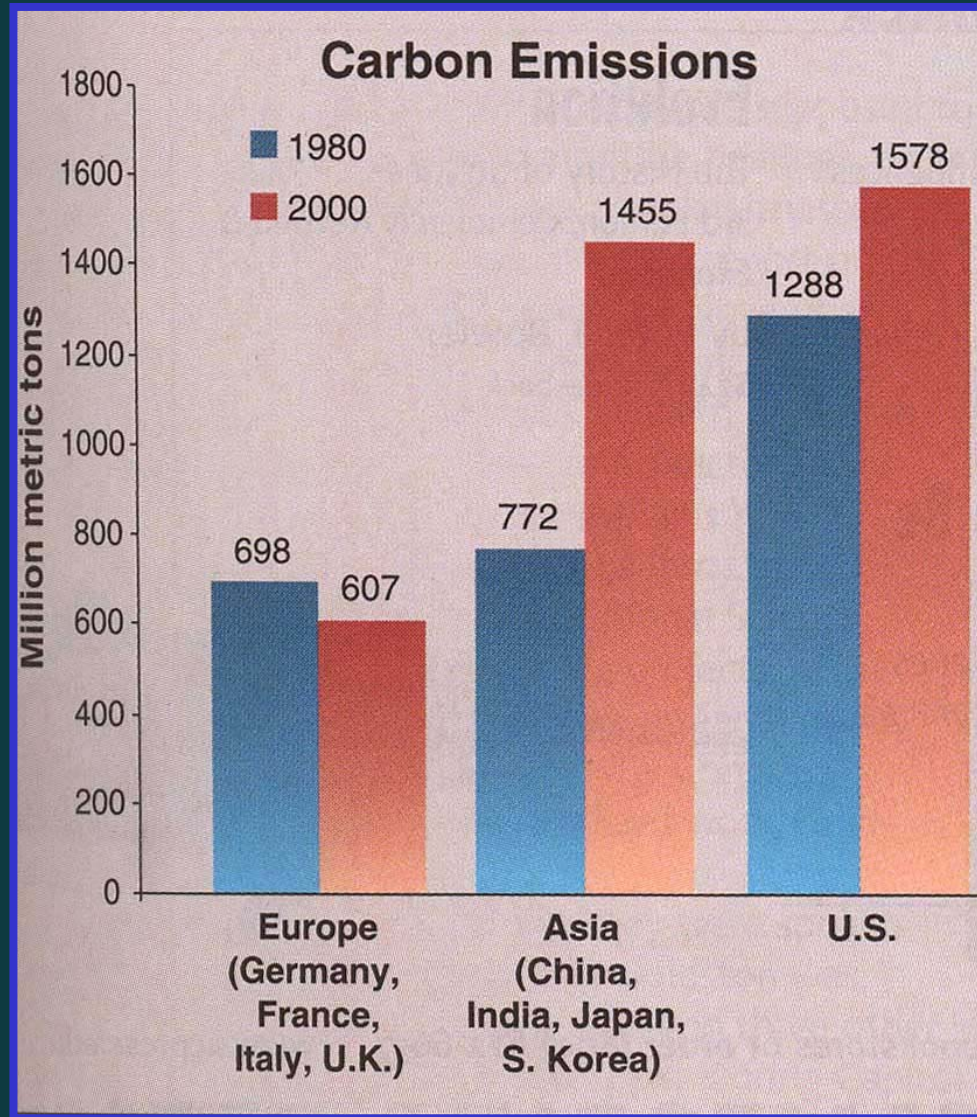


The Problem and the Challenge



- Developing Asia is the dirtiest continent in the world
- Rapidly growing energy consumption and carbon emissions

Industrial Transformation in Asia Project



Carbon Emissions

The Problem and the Challenge



- Developing Asia is the dirtiest continent in the world
- Rapidly growing energy consumption and carbon emissions
- Asia will overtake OECD in GHG emission between 2015-2020
- Most of industrial stock that will be in place in 2020 not yet built
- Provides a one time opportunity to alter energy, materials, water and pollution intensities of urban-industrial growth
- Without such change consequences enormous locally and globally

Objectives

The development of a network of Asian researchers and institutions, and international partners to examine key issues of industrial transformation including:

- Assessment of energy and pollution intensities of various industrial sectors;
- Evaluation of
 - Strategies for reduction of emissions, energy, and material consumption;
 - Regulatory, financial, social, informational and institutional barriers to technology transfer and adoption;
 - Role of public policy and private sector in promoting adoption of energy/material efficient technologies;
 - Integration of economic and environmental policies at the urban scale

Industrial Transformation in Asia Project

Initial Activities

Establish a network of researchers and policy makers from East and Southeast Asia

- Will constitute a virtual center for research policy development and monitoring
- Conduct benchmark performance assessments of energy and environmental intensities in selected industrial sectors
- Establishment of project office at UNU
- Initial network meeting in 2004 in Japan

