Integrating Indigenous Knowledge in Climate Change Adaptation Strategies of Asia and the Pacific: Issues and Options

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IGES Contributions to Climate Change Since Kitakyushu Seminar in 2001

1. Climate Policy Dialogues
   - A: Within Japan
   - B: With other Asian countries
     (China, India, Korea,
     Thailand, Vietnam, Cambodia)

2. MOFA-IGES Informal Meeting on Further Actions against Climate Change - July 2002
   - 3 International organizations
   - 6 Developed countries
   - 6 Developing countries

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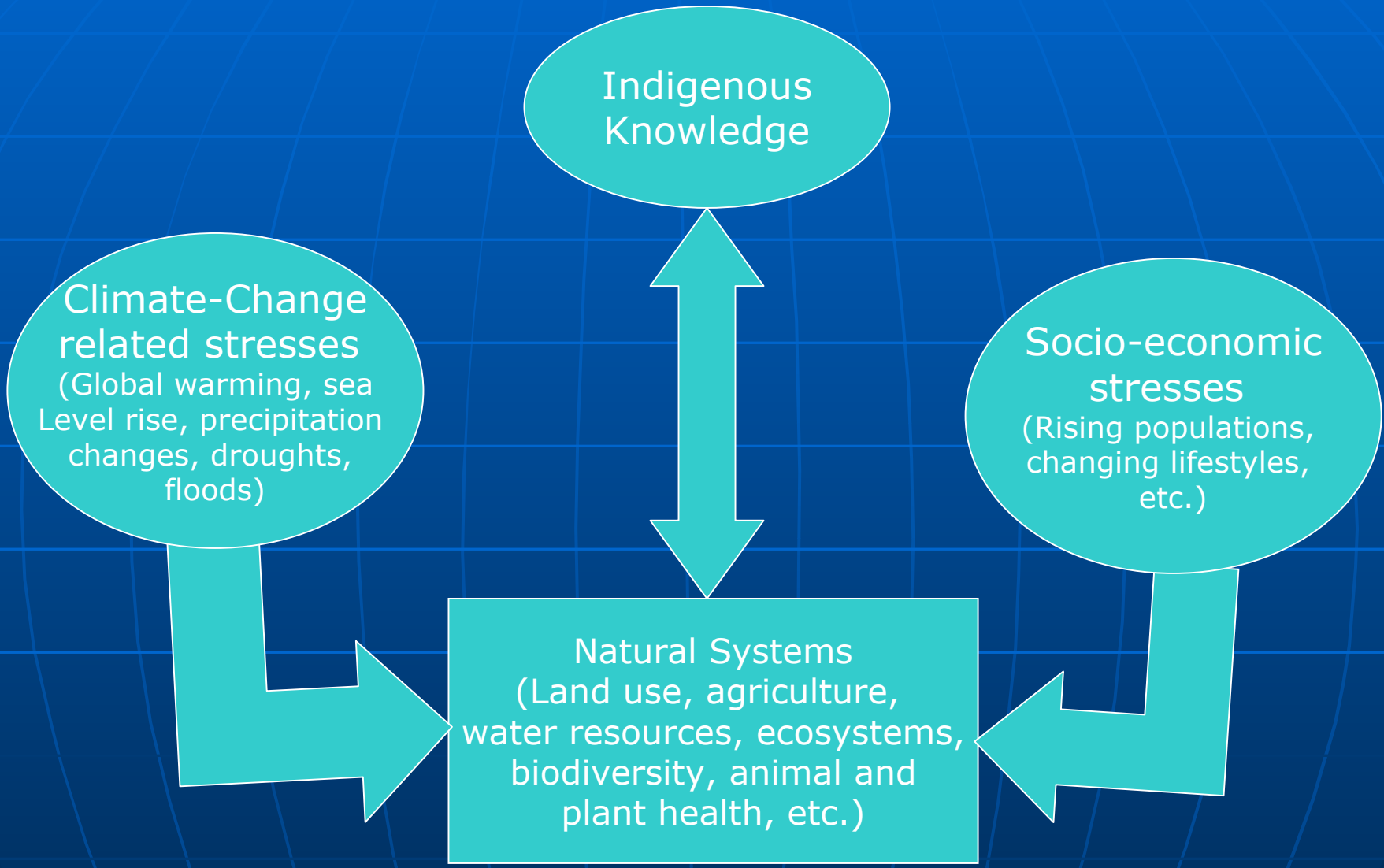
Overview

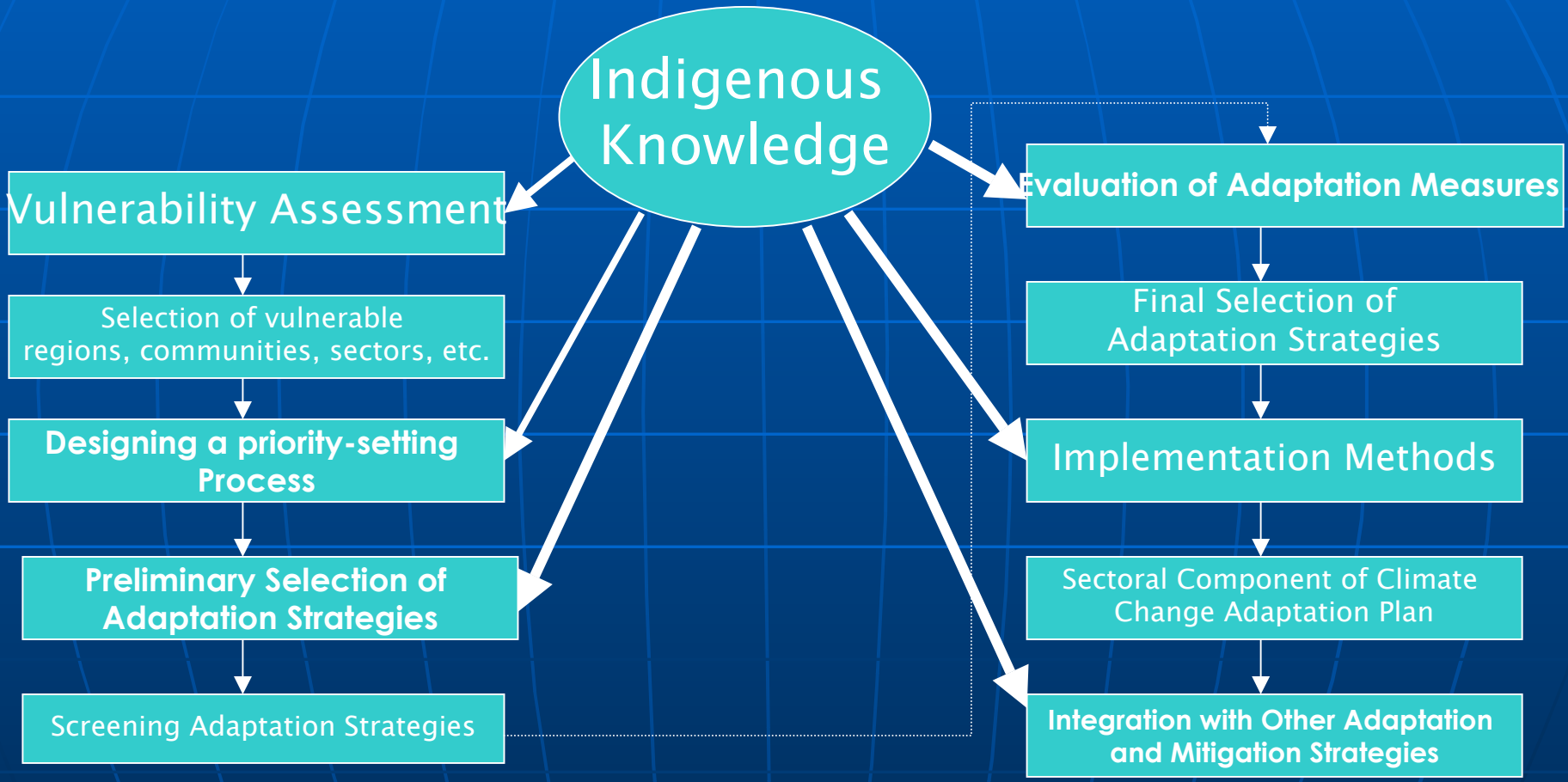
1. Indigenous Knowledge (IK) and Climate Change Adaptation (CCA) policy
2. International discussions on IK
3. Examples
   (a) Agriculture and Forestry
   (b) Livestock and Fisheries
   (c) Water Resources
4. Main reasons for integration
5. Guiding principles and stages
6. Spatial framework for integration
7. RISPO Project at IGES
8. Concluding remarks

What is Indigenous Knowledge?

Knowledge **unique** to a given culture or society, acquired through accumulation of **years of experiences** of local people, informal experiments and intimate understanding of the ***natural systems stressed by climate change*** and socio-economic development.


Indigenous Knowledge
Climate-Change related stresses (Global warming, sea Level rise, precipitation changes, droughts, floods)
Socio-economic stresses (Rising populations, changing lifestyles, etc.)
Natural Systems (Land use, agriculture, water resources, ecosystems, biodiversity, animal and plant health, etc.)

Indigenous Knowledge in Climate Change Adaptation Policy Process



International Discussions on IK in Relation to Climate Change

1. UNCED Rio Summit 1992
2. Quito Declaration - 1993
3. GK97 (Global Knowledge 97) – Canada - 1997
4. Albuquerque Declaration – 1998 (COP4 Argentina)
5. IPCC Workshop, San Jose, CA (1998)
6. Global Knowledge II – Malaysia, 2000
7. International Indigenous Forums on CC - Lyon (2000), Hague (2000), Bonn (2001)
8. STAP Expert Group Meeting on Vulnerability and Adaptation – Feb. 2002
9. GEF Meeting – USA –April 2002
10. International Conventions: UNFCCC, CBD, UNCCD

Indigenous Knowledge in Climate Change Adaptation – Agriculture

- Spatial and temporal climate risk management strategies through intercropping, mixed cropping, mixed land use, etc.
- Cultivation of more than one type of grain staple
- Cultivation of varieties adapted to the depth of flooding – Bangladesh
- Cropping pattern decisions based on local predictions of climate and Varying planting dates based on complex cultural models of weather (e.g., Krishi Panchang - Climate forecasts for an entire year based on planetary positions)
- Raised field agriculture to cope with unpredictable weather patterns
- Re-terracing of collapsed slopes, changes in land use to match slope stability, and agricultural de-intensification following landslides
- Indigenous water harvesting techniques to cope with drought
- Cemento-cemento or Kahun-Kahun to reduce the impact of heavy rainfall - Indigenous soil conservation in Matalom, Philippines
- Microclimate manipulation
    a. Betel vine gardens in South India
    b. Grape vine gardens in Nubra valley in Himalayas

Forestry

- Community regulations and religious decrees for the maintenance of ecosystem health e.g., bans on cutting certain types of tress (e.g., acacia, fruit trees)
- Identification of most vulnerable regions
- Local knowledge on trees that resist harsh climates
- Knowledge on species with a limited geographic range
- Knowledge on species with limited seed dispersal and migration capabilities
- Knowledge on regions/species currently experiencing stress from climate change
- Forest gardens in Java, Indonesia

Animal Husbandry

- Using emergency fodder in droughts (jack fruit leaves, sugarcane tops, banana stems, water hyacinth, etc.)
- Indigenous systems for selection and storage of nutritious tree fodder (e.g., Hindukush region - posilo-kam posilo (palatable and production-enhancing) and obano-chiso (related to dung characteristics) scales] to reduce drought risk on livestock.
- Multi-species composition of herds to survive extremes
- Local knowledge on animal fattening during summer
- Accustoming animals to winter cold in Mongolia
- Communal decision making on land use, the movement and sale of livestock
- Culling of weak livestock for food in drought
- Use of medicinal plants to treat livestock diseases

Fisheries

Local knowledge on productive fishing practices

Fish Habitat :

1. Knowledge on habitats for Hilsha.
2. Identification of the types of fish

Fishing methods following floods:

1. Jhaki Jal netting
2. Kua fishing

Water Resources

- Building mounds and constructing dwellings
- Planting catkin reed to prevent erosion
- Community management of wells and canals in Pakistan
- In-situ water storage systems (Surangas, Madakas, pebble-mulch fields, grid gardens)
- Warabandi system of water allocation in droughts
- **Water temples of Bali, Indonesia**

1. To minimize damage to rice from floods and drought
2. Optimal water sharing among farming communities

Reasons for Integration of IK in CCA Policy (I)

1. IK - powerful asset and social capital
2. Site-specificity and dynamic nature
3. Resemblance with scientific methods: Many ideas in IK on CCA,which were once regarded as primitive and misguided, are now seen as appropriate and sophisticated.
4. Tight linkage of knowledge and social responsibility.

Reasons for Integration of IK in CCA Policy (II)

5. Multi-level and multi-sector oriented
6. Sustainable development framework with 3E concerns – Economy, Equity and Environment
7. Facilitate understanding and effective communication and increase the rate of dissemination & utilization of CCA options
8. IK systems provide mechanisms for participatory approaches.

Guiding Principles for Integration

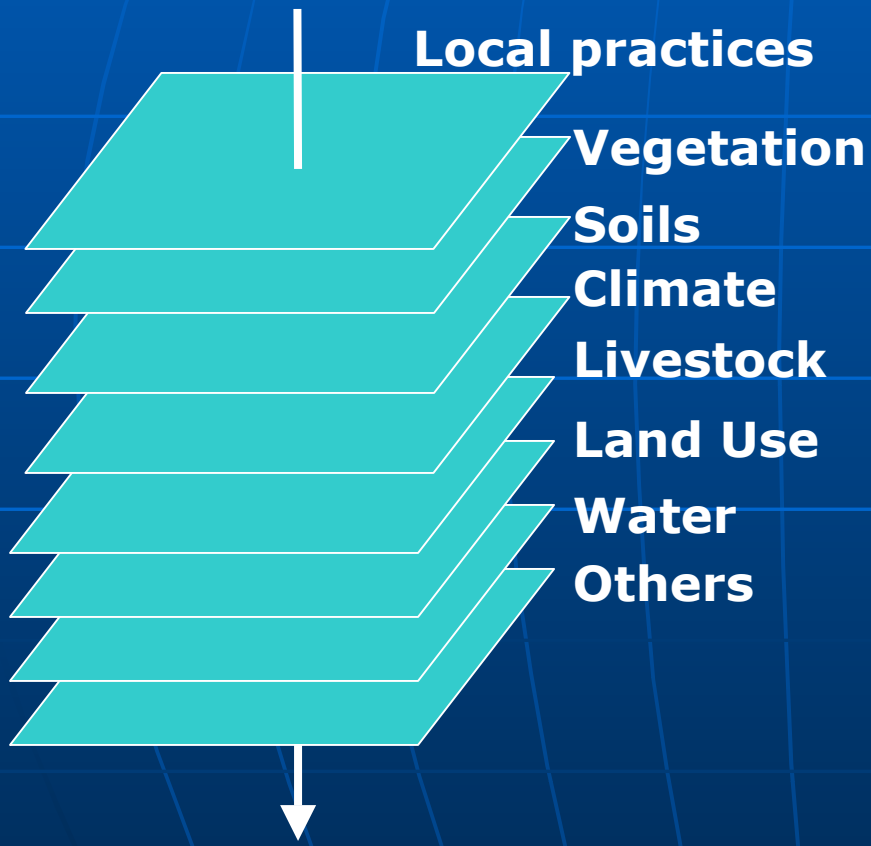
1. Bottom-up participatory approach
2. Partnerships and collaborative processes
3. Win-Win situations
4. Demand-driven
5. Sustainability dimension
6. Periodic assessment
7. Outreach strategies and Technology transfer
8. Capacity building & public awareness

Stages in Integration

- Documentation of IK practices in a region
- Awareness of a particular IK practice
- Perception of the practice as a solution to CC
- Motivation to enhance adaptation using IK
- Experimentation with IK practice to improve CCA
- Validation of the role of IK practice in CCA
- Evaluation of both indigenous and introduced strategies
- Utilization of the most suitable approaches
- Dissemination and popularization

A Spatial Framework for Integration

Data Layers in an IK-CCA GIS



Steps:

2. **Compilation using a historical matrix framework Utilization of GPS**
3. **Classification of IK as per specific geographic regions**
4. **Classification of information into various levels.**
5. **Layer-wise representation of data in a GIS**
6. **Spatial analysis of relationships**

Output: Geo-referenced climate change adaptation plans at various levels

RISPO Project at IGES

Goal: To propose "Strategic Policy Options" and "Policy Inventories" for informed decision making in Asia

Sub-topic: Adaptation policy options using local knowledge

Objectives:

1. To develop a compendium of rational indigenous practices on adaptation in selected sectors
2. To develop methodologies for integrating indigenous knowledge using a spatial framework

Methods: Participatory approaches; Interviews; Joint interpretations; Case studies; Collaborative projects; Spatial information technologies

Partners: Bangladesh, India; Thailand, Indonesia and Vietnam

Concluding Remarks

- The creation of a policy framework necessary to adapt to and cope with climate change and to build resilience in local people must follow a bottom-up approach.
- Adaptation plans must include local communities who are most affected, and who have accumulated knowledge on how to cope with climate extremes.
- Further research on scientific basis and rationality of local knowledge and steps to prevent its erosion are vital for sustainable development.
- Spatial technologies such as GIS must be taken advantage of in integrating indigenous knowledge.
- COP7/UNFCCC adaptation funds should preferentially support the projects that make use of indigenous knowledge in adaptation plans.