The Global Water System Project: opportunities for collaboration with LOICZ

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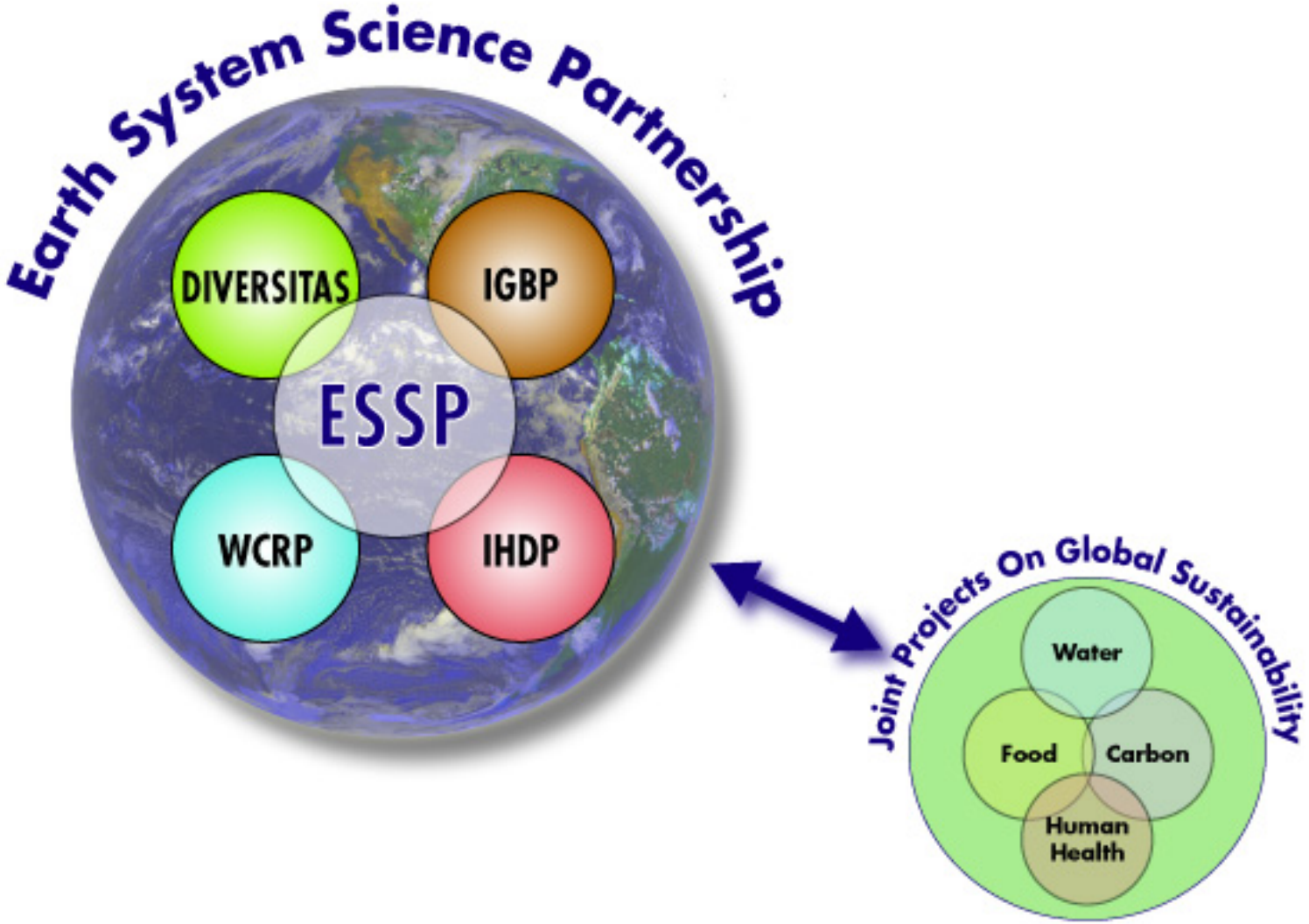
LOICZ OSC Egmond aan Zee, 29 June 2005

Overview

- The Global Water System Project
- GWSP fast track activities
- Research agenda with LOICZ

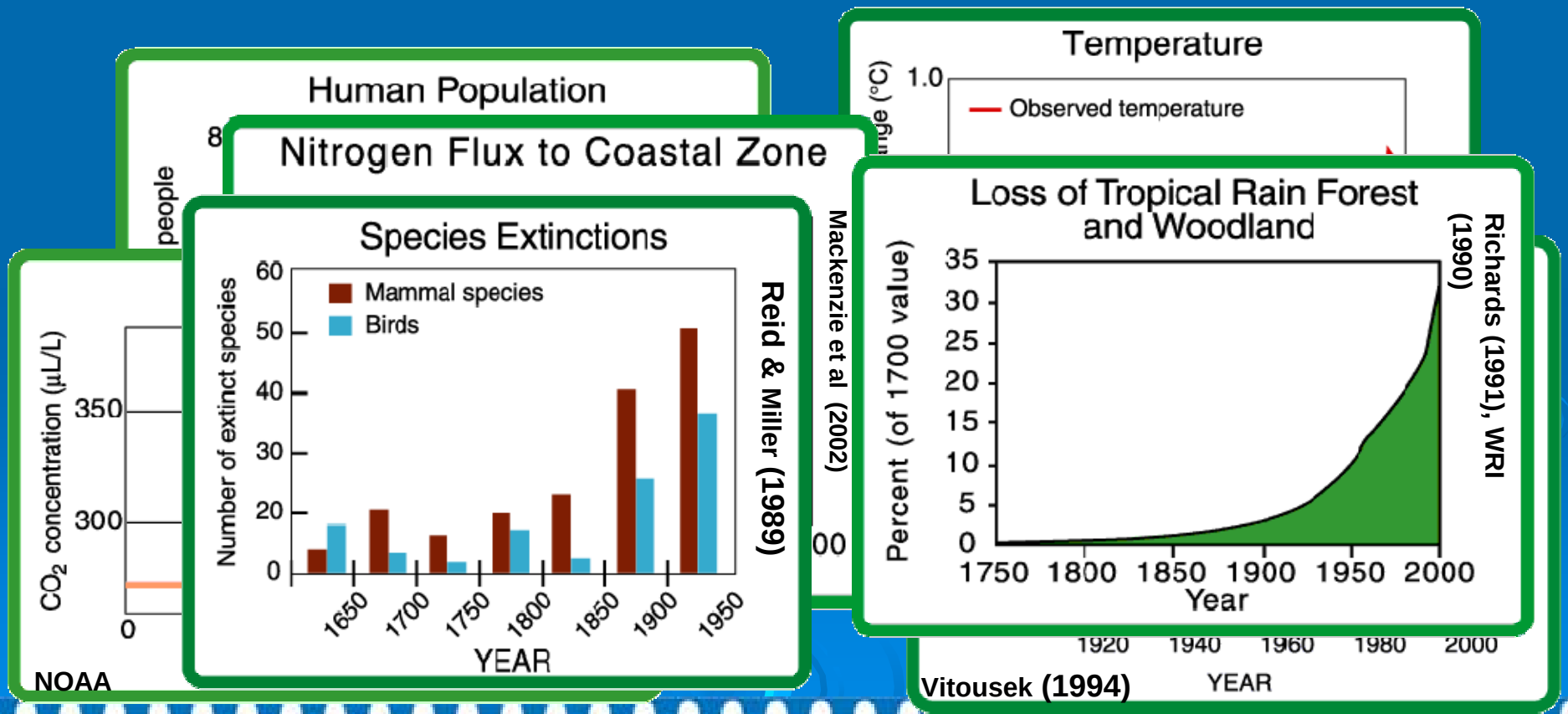
ESSP


Earth System Science Partnership
DIVERSITAS
IGBP
ESSP
WCRP
IHDP
Joint Projects On Global Sustainability
Water
Food
Carbon
Human Health

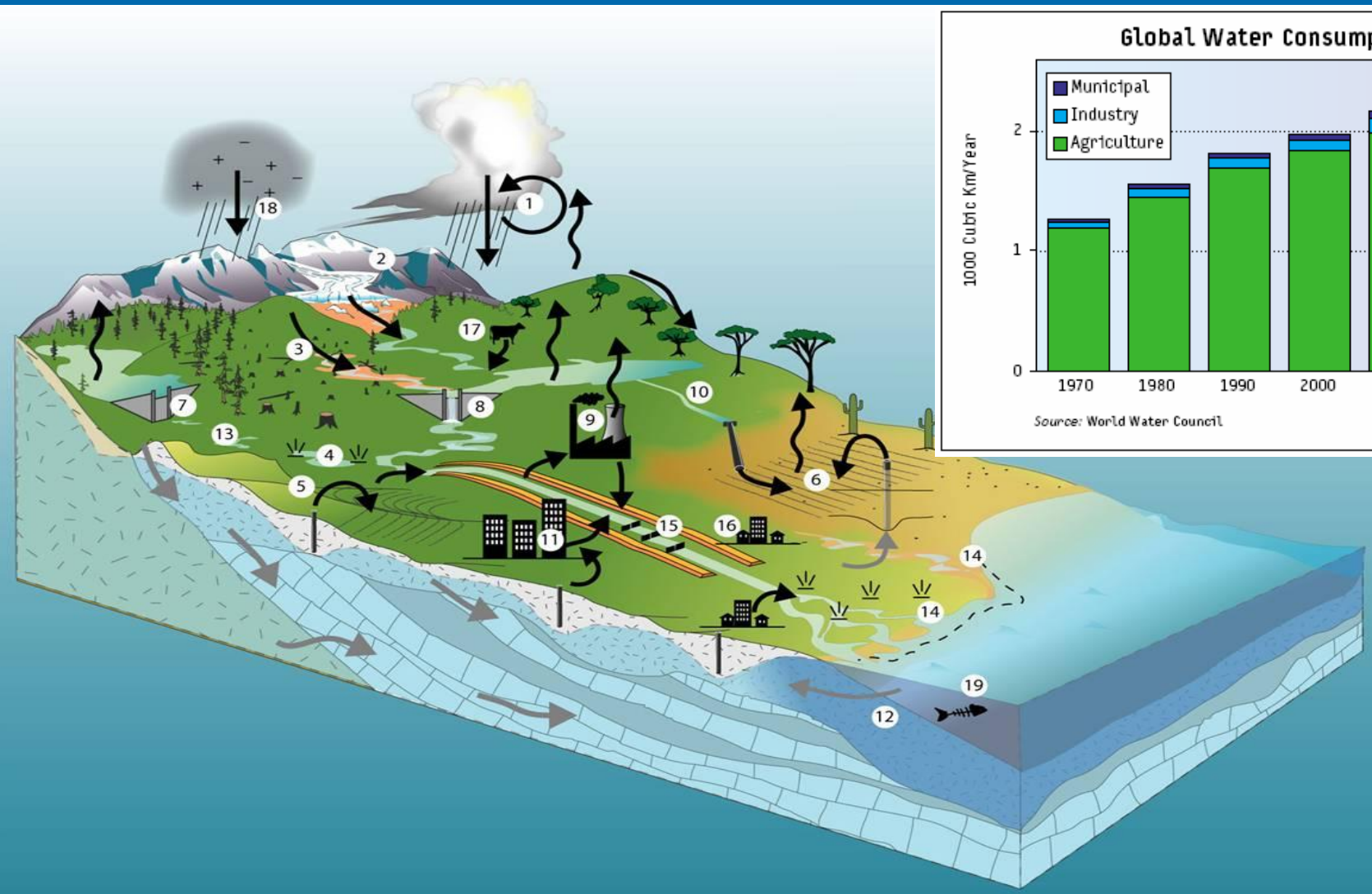
What is Global Change?

- Global Change is more than Global Climate Change
- It has natural PLUS human/social dimensions
- A constellation of changes, many global in domain

For example, we see large changes in:



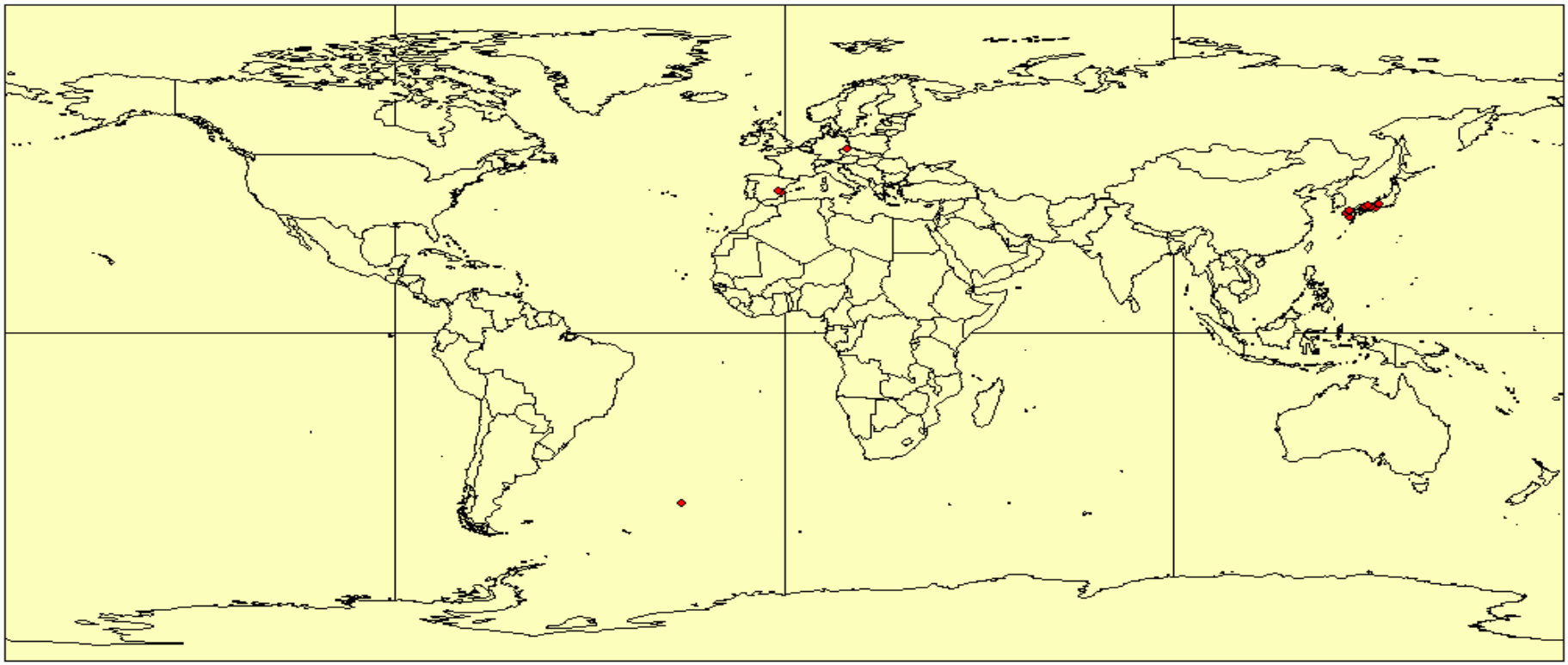
Dynamics of the GWS



Global Reservoir Database

～1750年

13,382dams



GWSP – Central Tenet

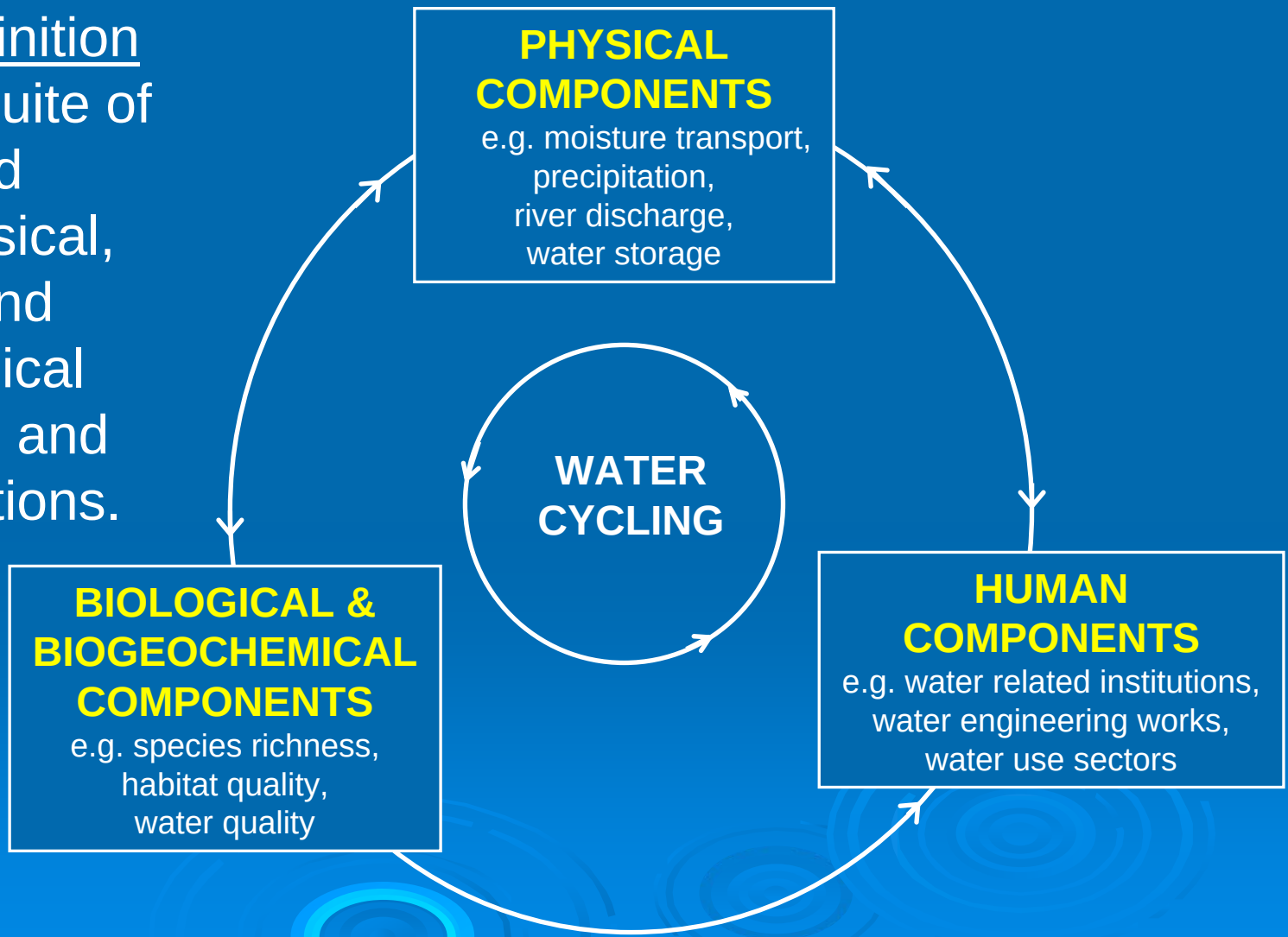
Human-induced changes to the water system are now *global in extent,*

yet we lack an adequate understanding of how the *system works* and *responds* to disturbances, and

how *society* can best *adapt* to rapidly-evolving new system states.

The Global Water System

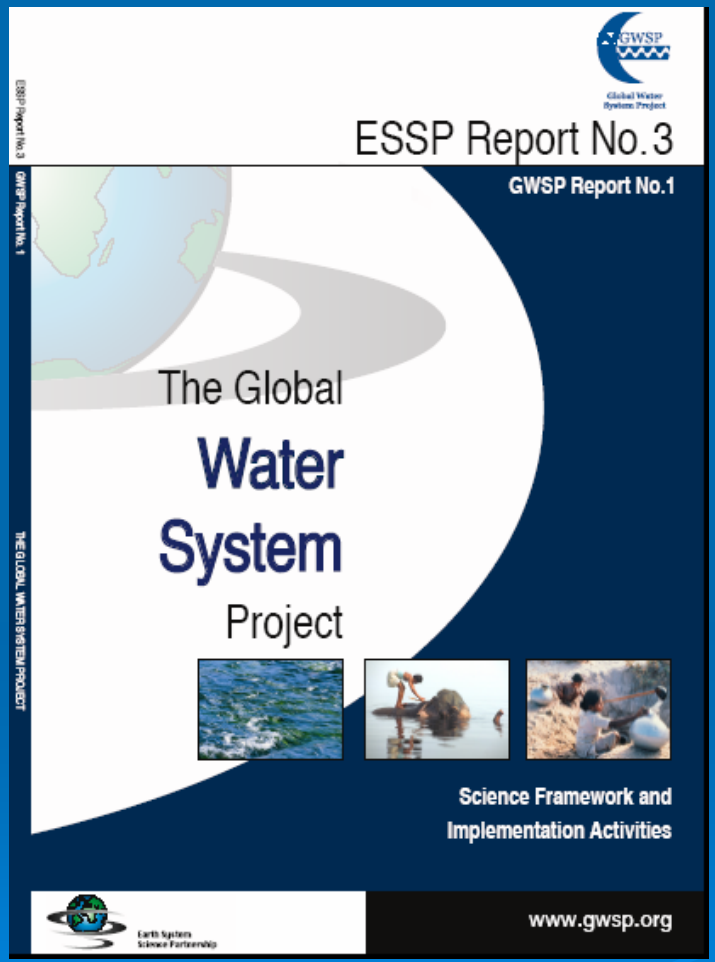
Working definition
The global suite of water-related human, physical, biological, and biogeochemical components and their interactions.



Overarching Question

How are human actions changing the global water system and what are the environmental and socio-economic feedbacks arising from the anthropogenic changes in the global water system?

GWSP Framing Document



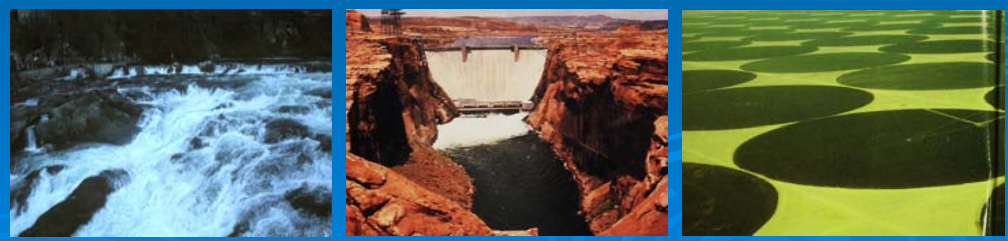
available at:
www.gwsp.org

The Framing Committee

Joseph Alcamo (Chair), Hartmut Grassl, Pavel Kabat, Felino Lansigan, Richard Lawford, Dennis Lettenmaier, Christian Leveque, Michel Meybeck, Robert Naiman, Claudia Pahl-Wostl, Charles Vörösmarty

Scoping Team

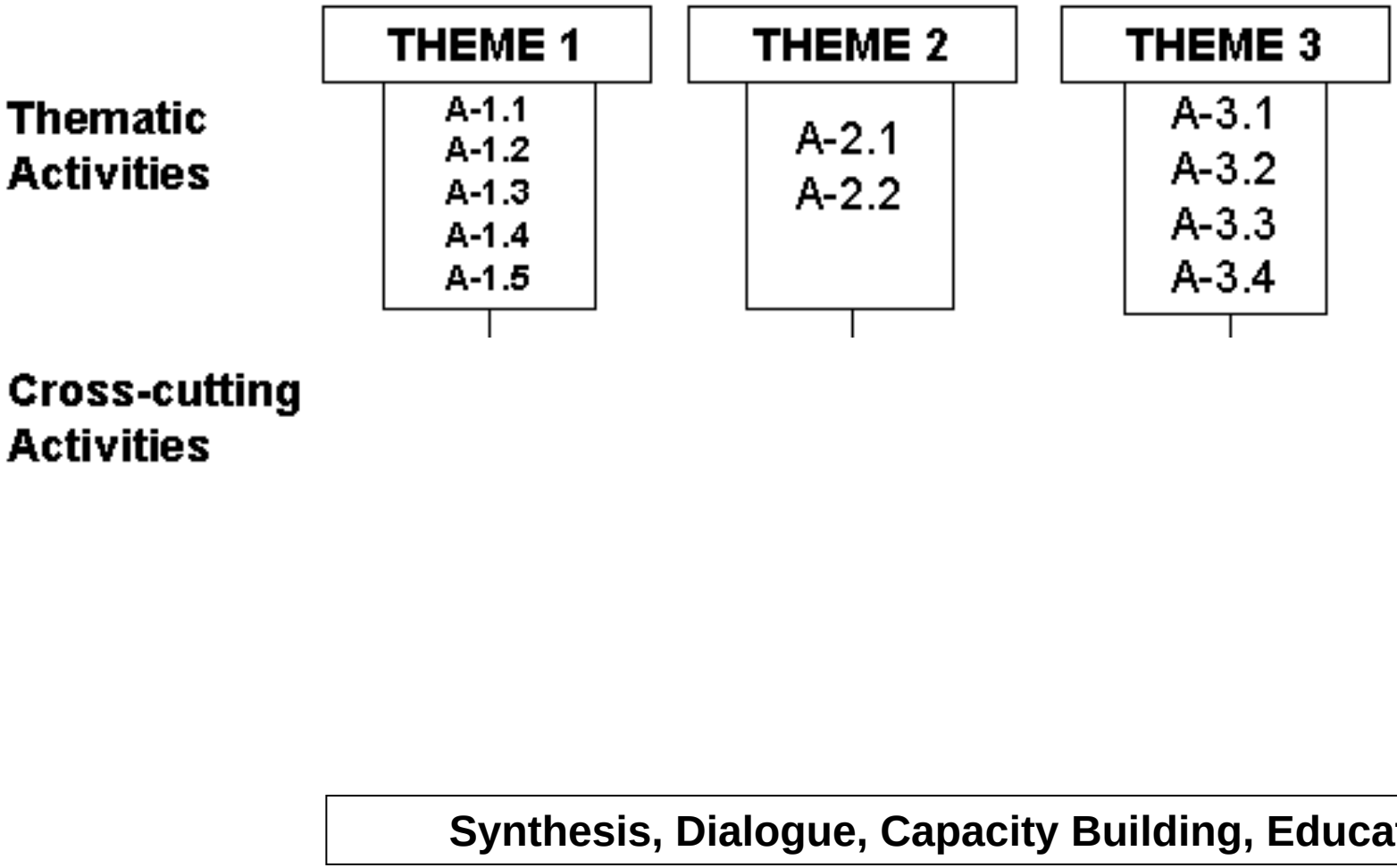
Carlo Jaeger, Dennis Lettenmaier, Christian Leveque, Harry Lins, Michel Meybeck, Madiodio Niasse, and Charles Vörösmarty



Framing Questions (Themes)

- What are the **magnitudes** of anthropogenic and environmental changes in the GWS and what are the **key mechanisms** by which they are induced?
- What are the main **linkages and feedbacks** within the Earth system, arising from changes in the GWS?
- How **resilient** and **adaptable** is the GWS to change, and what are sustainable management strategies?

Cross-cutting Research Activities



Synthesis, Dialogue, Capacity Building, Education

- Goal: reach a large audience
- Synthesise information
- Dialogue with stakeholders / policy makers
- Engage young scientist in international teams
- Education programme
- Co-operation with other research efforts

Fast-Track Activities

- Digital water atlas and world water balance
- An assessment of global water governance
- Input to international initiatives
  NEEPSI, GEOSS, CSD, GECAFS, …
- A global study of environmental flows
- Advanced (educational) institute on „Global Environmental Change and Water“
- Harmonisation of GWS terminology through a GWS lexicon

Fast-Track Activity

- What is the State of the Global Water System?
- The Digital Water Atlas and World Water Balance
  - Digital, harmonized, geographic data for the global water community
  - Socio-economic, physical, chemical, & ecological data
  - **Short term**: Archive of existing global data sets and update of world water balances
  - **Longer term**: Harmonized data sets, interactive atlas for planners, policymakers & other stakeholders

Fast-Track Activity

- *What are Environmental Flows Around the World?*
- A Global Study of Environmental Flows
  - What are the discharge and water quality requirements for aquatic ecosystems world-wide?
  - How can aquatic biodiversity be maintained in the face of competing demands for water?
  - **Short-term**: Review and assessment of case studies and concepts & Co-sponsor workshop on Environmental Flows (with Global River Sustainability Project).
  - **Longer term**: New insights into tradeoffs between water for nature and water for society.

Fast-Track Activity

- How is Water Governed on the Global Scale?
- An Assessment of Global Water Governance
  - What aspects of water as a resource should be governed at the global scale?
  - What are the forms of global governance? (int. national water treaties, int. water-related organizations
  - How do global arrangements (WTO, GATT) affect local water resources?
  - What are the implications of virtual water trade?
  - **Short term**: Workshop and publication on global water governance
  - **Longer term**: Better understanding of the role of global water governance in the world water system

Project Endorsement

- Procedure
  - Write 5 Page Executive Summary
    Goals, Relevance to GWSP Framework, …
  - Submit Proposal to the IPO
    Comments, Assessment
  - IPO Sends Proposal to SSC
  - Decision/Feedback from SSC
  - Answer (Endorsement Letter) from IPO

LOICZ-GWSP collaboration

- Science Framework document p63-64
  - Changing boundaries of estuarine environments
  - Impacts of river diversions and land use change on coastal processes
  - Global change impacts on integrity of coastal ecosystems
  - Saltwater intrusion to coastal aquifers
  - Large scale nutrient cycles
  - Data exchange