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- **Too much or too little water**
 - Floods
 - Droughts
- **Poor distribution**
 - Famine
- **Poor quality**
 - Health hazard
- **Poor management**
 - Competition
 - Conflicts



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CENTRAL TENET

Humans are changing the global water system in a globally-significant way without.....



adequate knowledge of the system and thus its response to change.





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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

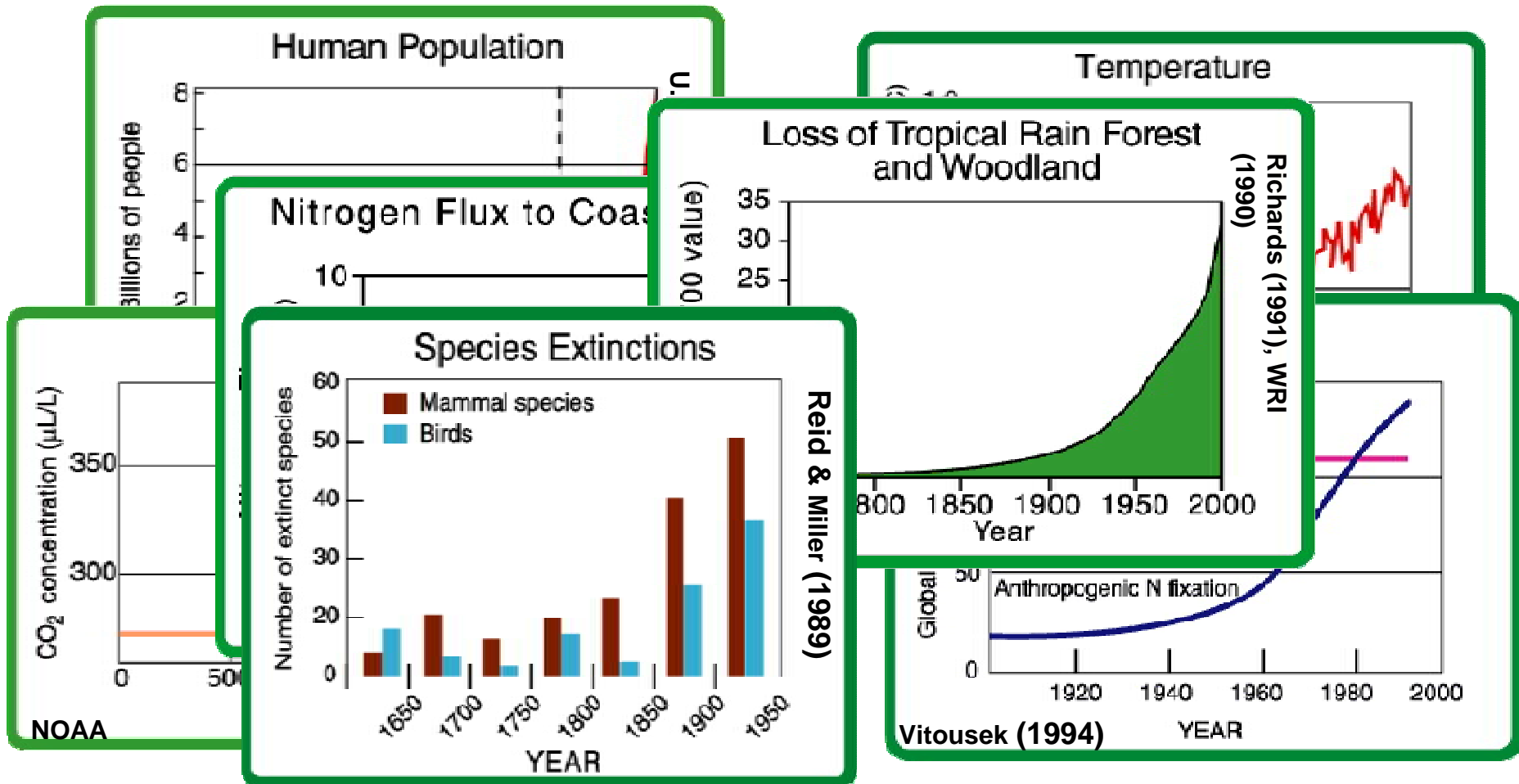
For example, we see large changes in:



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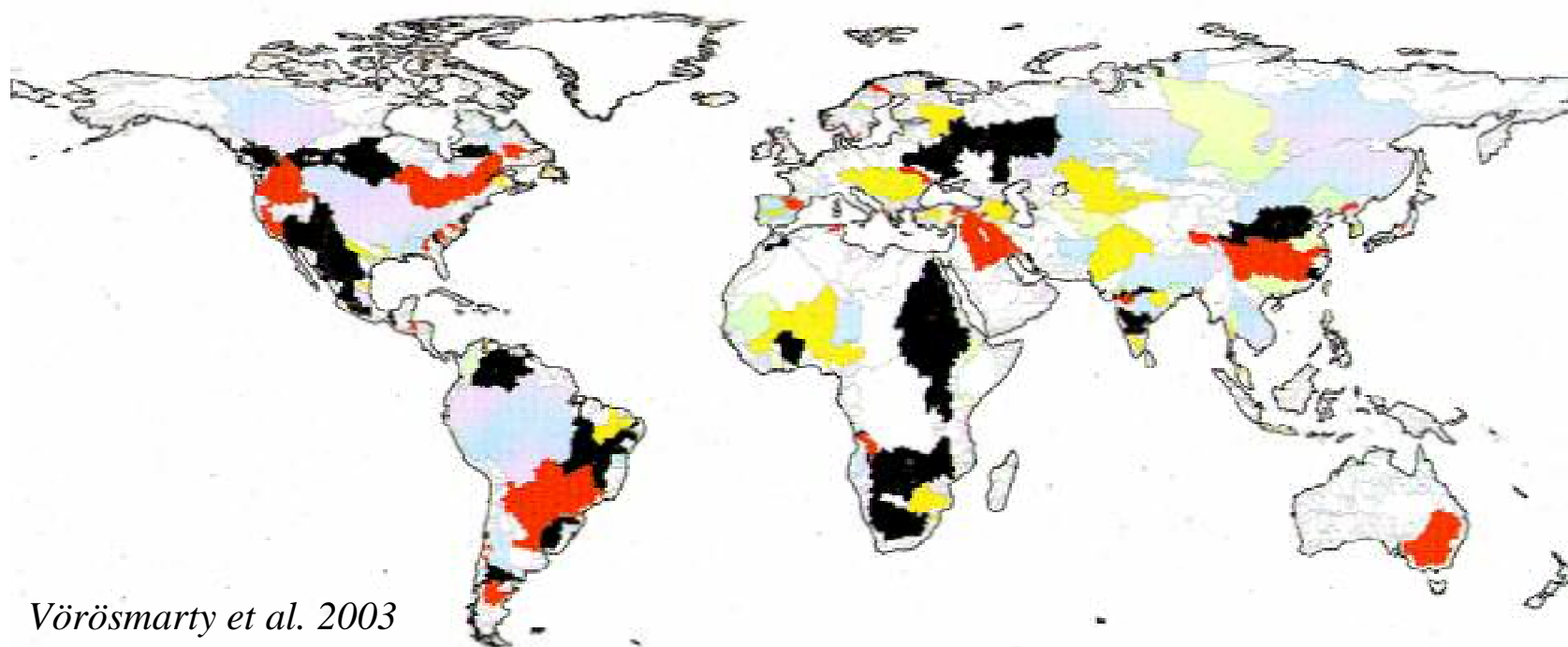


What is Global Change?



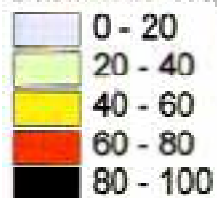


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Vörösmarty et al. 2003

Basinwide Trapping Efficiency (%)



- Coastal zone now gets 30% less sediment
- 700% increase in water held in rivers
- Tripling of river runoff travel times



UNH



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Needs, Uses and Demands:

- Water and the Environment
- Water for Food Security
- Water for Human Health
- Water and Industry
- Water and Energy



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RAISING AWARENESS

- How much have we advanced the awareness of humans (including politicians)?
- In what directions should we go to further advance the awareness of people?
- How to put water in the minds of people???





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World Water Assessment Programme



The State of The World's Freshwater
Resources





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International expectations

- create a sustainable mechanism for reporting on progress made in water-related subjects
- strengthen sustainable cooperation of the entire UN system
- establish a knowledge base
- reinforce the national capabilities
- develop indicators



Water for People Water for Life



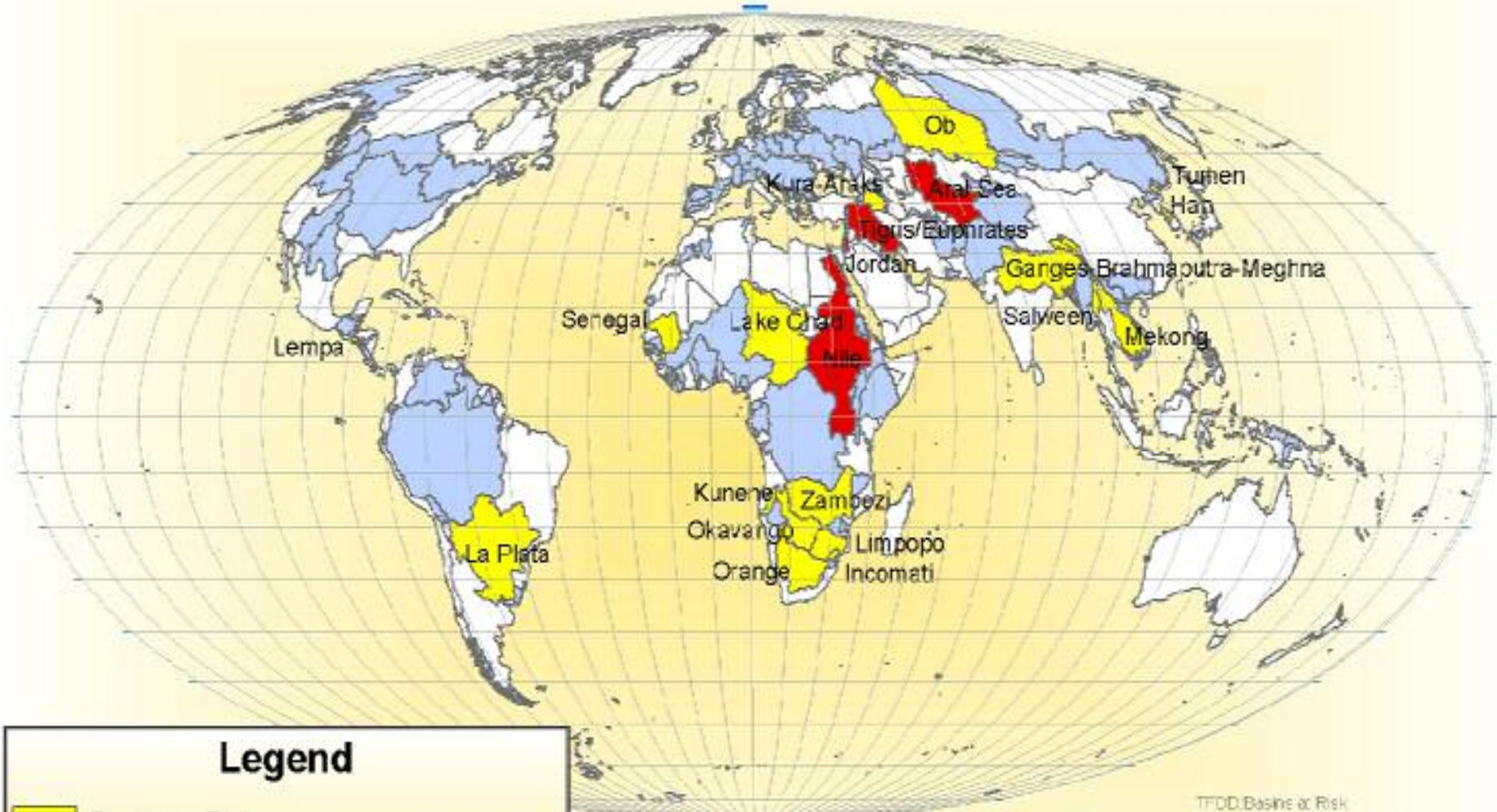
World Water




Assessment Programme

The United Nations
World Water Development Report

Basins at Risk



Legend

-  Basins at Risk
-  Political Boundaries
-  International Basins
-  Basins Currently in Dispute/Negotiations

TFDD: Basins at Risk
Department of Geosciences
Oregon State University
Cartography: Greg Fiske
June 2001



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Water Interactions : Systems at Risk and Social Challenges

Plan for the International Hydrological
Programme
of UNESCO - Phase VI
(2002-2007)



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Examples of Interactions

- Surface water and groundwater
- Atmospheric and terrestrial part of hydrologic circle
- Freshwater and salt water
- Global watershed and river reach scales
- Water bodies, terrestrial and aquatic ecosystems
- Water and society
- Science and policy
- Water and civilization



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THEMES OF IHP-VI

- Theme 1 (T1) Global Changes and Water Resources
- Theme 2 (T2) Integrated Watershed and Aquifer Dynamics
- Theme 3 (T3) Land Habitat Hydrology
- Theme 4 (T4) Water and Society
- Theme 5 (T5) Water Education and Training

Two cross-cutting programme components (CCPCs): **FRIEND** (Flow Regimes from International Experimental and Network Data) and **HELP** (Hydrology for the Environment, Life and Policy) have been identified which, through their operational concept, interact with all themes.



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Hydrology for the Environment, Life and Policy (HELP)



To deliver social, economic and environmental benefit to stakeholders through sustainable and appropriate use of water by directing hydrological science towards improved integrated catchment management basins concept, interact with all themes.

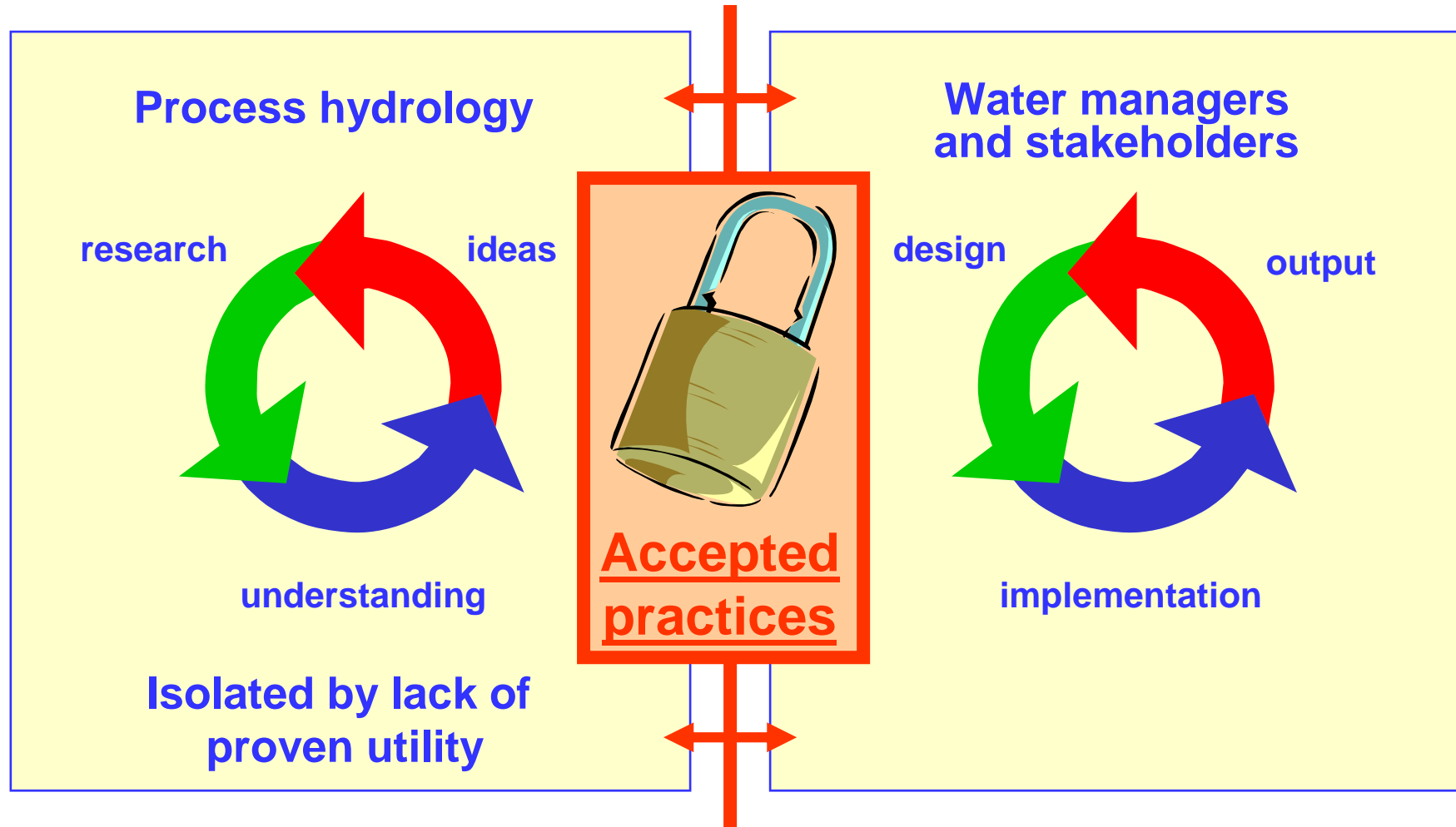


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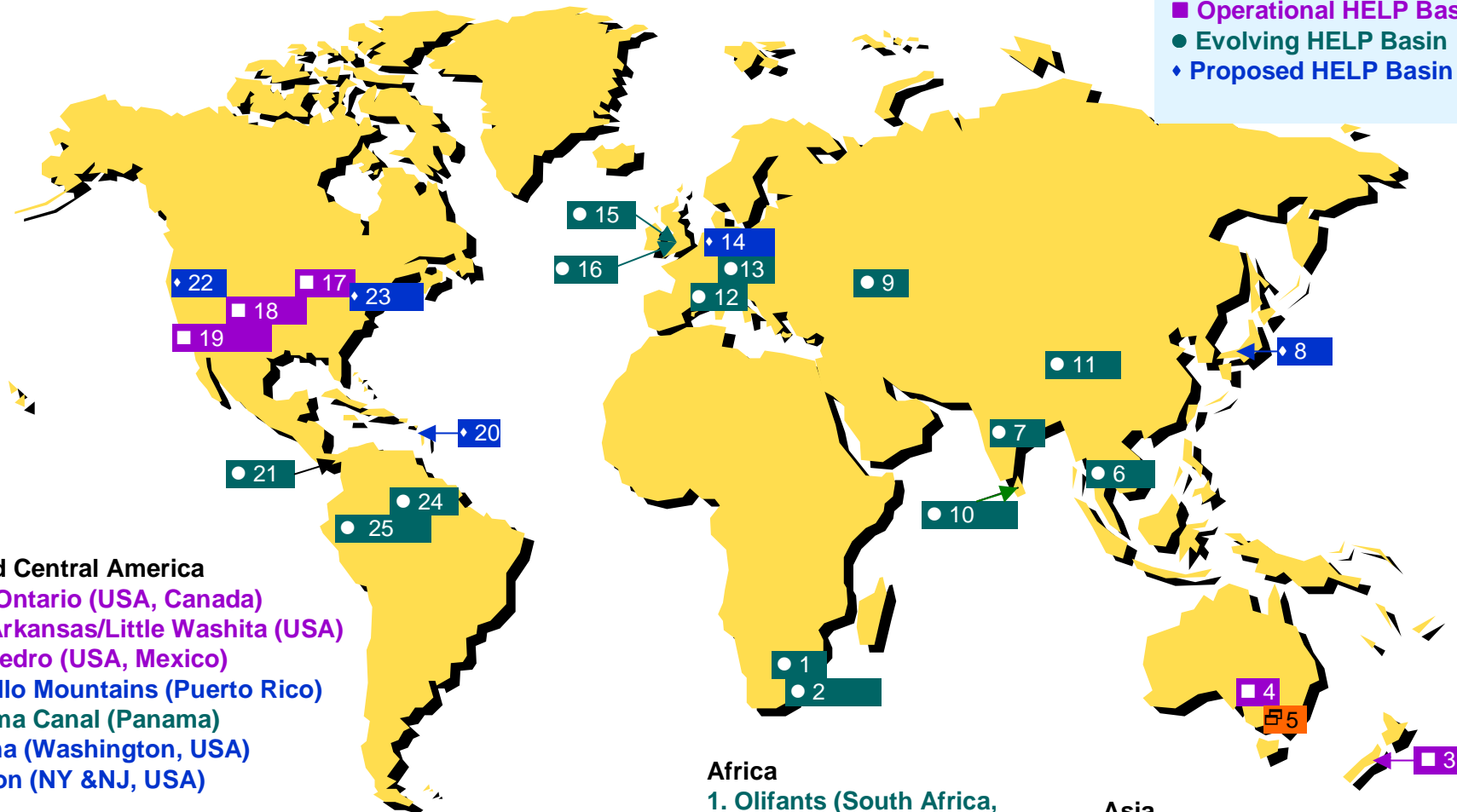
PARADIGM LOCK

HELP Real people
Real catchments
Real answers



HELP PILOT PHASE DRAINAGE BASINS

-  Reference HELP Basin
-  Operational HELP Basin
-  Evolving HELP Basin
-  Proposed HELP Basin



North and Central America

- 17. Lake Ontario (USA, Canada)
- 18. Red-Arkansas/Little Washita (USA)
- 19. San Pedro (USA, Mexico)
- 20. Luquillo Mountains (Puerto Rico)
- 21. Panama Canal (Panama)
- 22. Yakima (Washington, USA)
- 23. Hudson (NY & NJ, USA)

South America

- 24. Rio Jau and/or Rio Branco or Ji-parana (Brazil)
- 25. Rio Jequetepeque (Peru)

Europe

- 12. Herault (France)
- 13. Danube (5 countries in Europe)
- 14. Spree-Havel (Germany)
- 15. Upper Severn (UK)
- 16. Thames (UK)

Middle East (None)

Africa

- 1. Olifants (South Africa, Mozambique)
- 2. Thukela (South Africa)

Australasia

- 3. Motueka (New Zealand)
- 4. Mount Lofty (Australia)
- 5. Murrumbidgee, sub-basin of Murray Darling (Australia)

Asia

- 6. NE of Thailand and Vietnamese Delta, sub-basins of Mekong (6 countries in Asia)
- 7. Subernarekha (India)
- 8. Yasu or Tama (Japan)
- 9. Aral Sea (Central Asia)
- 10. Walawe (Sri Lanka)
- 11. Tarim (China)



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The water crisis is mainly one of governance...

- The global water crisis will continue if the “inertia of the governing class” persists;
- Water resources will continuously diminish as a result of population growth, of pollution and of foreseeable climate change;
- At global scale, the challenge is to awaken the necessary political will to meet commitments concerning water resources and to avoid dealing with the subject with rhetorical declarations and grandiloquent promises.



UNESCO-IHP International Sedimentation Initiative



What about sediments?

- erosion and sedimentation processes and management in catchments, river systems and reservoirs are increasingly important in all parts of the world;
- erosion and sedimentation processes have significant socio-economic and environmental impacts in water management;
- sedimentation processes are not sufficiently understood for practical uses;
- **within the next few decades more than 50% of the world's reservoir storage capacity may be lost due to sedimentation (appropriate storage sites of water are limited);**
- sediment management practices should be improved.



UNESCO-IHP International Sedimentation Initiative



Overall Mission:

The Intergovernmental Council of IHP adopted in June 2002 a resolution to establish the International Sedimentation Initiative.

Its overall mission is to “*assess erosion and sedimentation processes in catchments, river systems and reservoirs at a global scale and its environmental and socio-economic impacts in order to improve sediment management practices*”.



UNESCO-IHP International Sedimentation Initiative



Proposed contributions:

- A review of the state-of-the-art knowledge in erosion and sedimentation processes at the global scale, as well as a review of available datasets and existing assessment reports at different scales;
- The elaboration of a methodological and organizational framework for the **elaboration of a global assessment** of erosion and sedimentation processes, the **implementation of case study analysis at the catchment scale**, and a **global analysis of risk associated with sediment transport**.



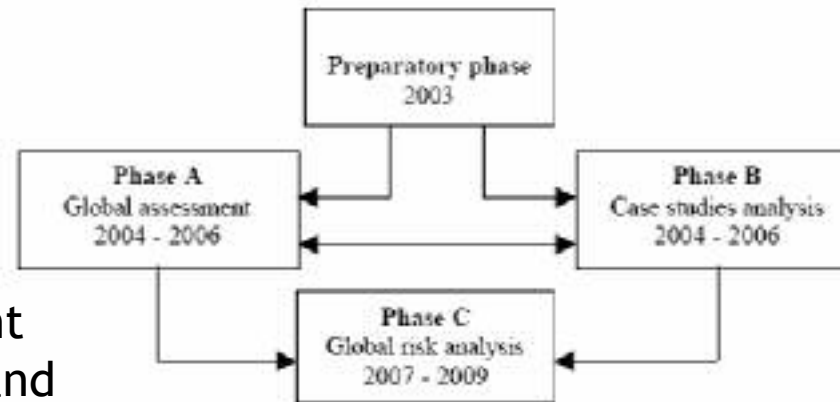
UNESCO-IHP International Sedimentation Initiative



Structure:

Phase A:

To improve/update integrated evaluation of erosion and sediment transport to inland water bodies and marine environment at river basin scale and to provide the information on the socio-economic impact in order to understand the cause-effect chains.



Phase B:

More detailed basin analysis of selected cases studies in each region of the world, investigating the spatial variability of the sediments sources, the sediment delivery ratio under different conditions, the solid discharges, and finally the processes of depositions into inland water bodies and estuaries.

Phase C

Global sediment risk assessment using information gained through the first two phases in order to determine the root causes of sediment transport and the priority environmental and socio-economic impacts on land and marine environments (including a causal chain analysis).

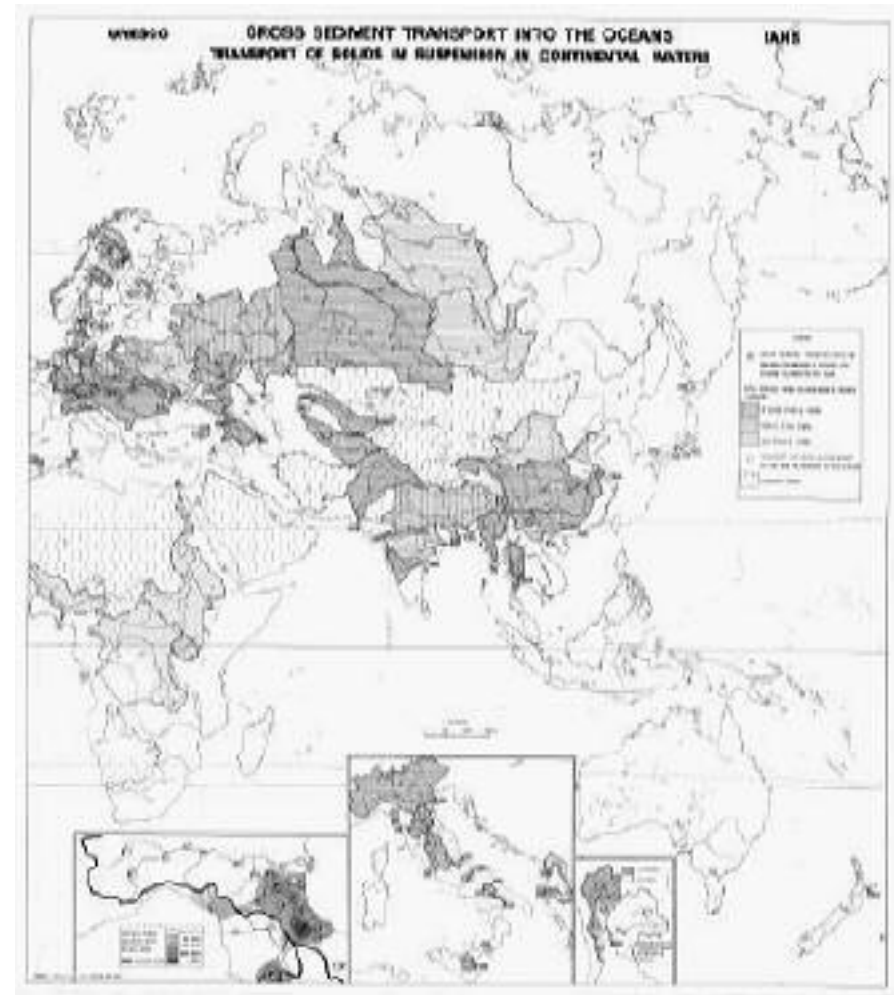


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Previous experiences:

UNESCO, through the Secretariat of the International Hydrological Decade (which became then IHP) carried out a survey in collaboration with the International Commission on Continental Erosion (ICCE/IAHS). Data were collected from 246 stations on the solids transported in suspension by the streams. The first preliminary edition of the document was published in **1974** including two maps of Gross Sediment Transport into Oceans.





UNESCO-IHP International Sedimentation Initiative



In Europe ? The Danube...



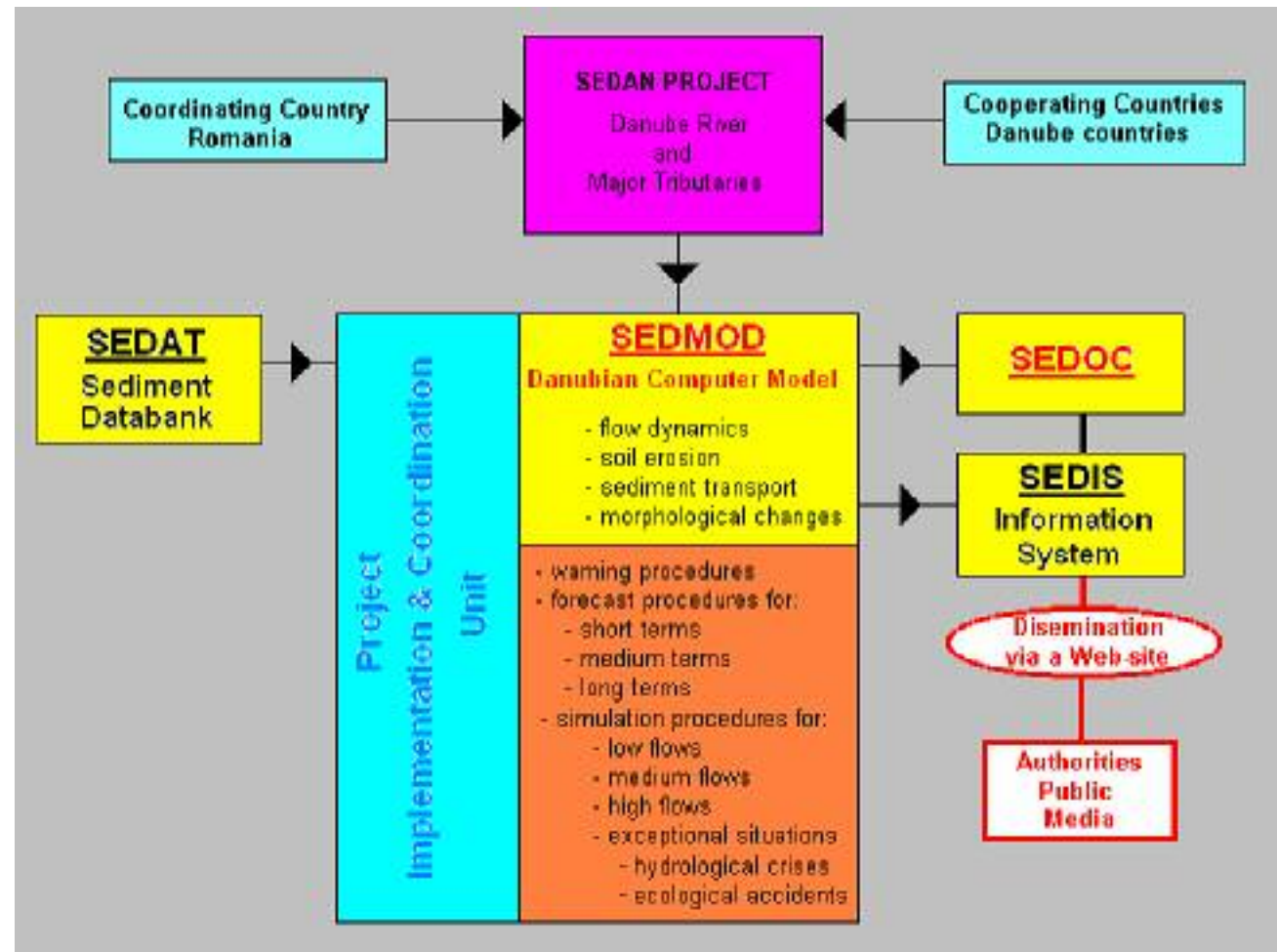


UNESCO-IHP International Sedimentation Initiative



SEDAN Project (Romanian IHP NC)

Modeling of erosion, transport and sedimentation processes in the Danube River and its major tributaries (Ing. D. Batuca)





UNESCO IHP - ISI And SEDNET...



The terms of a good marriage contract... ***FOCUS***

- SEDNET final product: guidance for sustainable sediment management at the river basin scale, with an emphasis on sediment **quality** (contamination) and integrated solutions that embrace soil/water systems.
- UNESCO – ISI can not fund research and development, and is focused initially on **quantity**; final product will be raising awareness (starting from the global level – WWAP) and promoting IWRM among policy-makers and stakeholders (pilot testing in basins and capacity-building).



UNESCO IHP - ISI And SEDNET...



The terms of a good marriage contract... ***EUROPE***

- SEDNET promoting and serving EU – WFD implementation in Member States.
- UNESCO – ISI is a global initiative – European context = EU approximation process. Resources will be concentrated on Central and South-Eastern European Countries (UNESCO – ROSTE), with a first case study on the Danube River Basin.



UNESCO IHP - ISI And SEDNET...



The terms of a good marriage contract... **DANUBE**

- Joint interest in applying the guidance document in the Danube practice and take such an opportunity to also further improve the guidance document by integration of sediment quantity issues (integration of the SEDAN project as proposed by Mr. Batuca).
- A joint SedNet – ISI Danube pilot project will be elaborated taking into consideration the recently started EC Framework Programme 6 Integrated Project **AquaTerra** (where part of the Danube is also a pilot river basin case) – Links with ICPDR.



UNESCO IHP - ISI And SEDNET...



The terms of a good marriage contract... **TASKS**

- J. Brils is a Member of the UNESCO – IHP ISI Steering Group (contribute to coordination and dissemination).
- UNESCO – ROSTE is interested in opening SEDNET to



- raising, coordination, info dissemination and guidance.
- Contribution from SEDNET to UNESCO-IHP capacity-building efforts.



UNESCO IHP - ISI And SEDNET...



TO KNOW MORE...

www.portal.unesco.org/venice



<http://www.unesco.org/water>

UNESCO Water, sustainable development and conservation of freshwater resources in the world - Microsoft Internet Explorer

File Edit View Favorites Tools Help

Back Forward Stop Refresh Home Search Favorites History Cookies Import Export Messenger

Adresse <http://www.unesco.org/water/>

Water
United Nations Educational, Scientific and Cultural Organisation

search

English Français Español

Home to Water Portal

About the Water Portal

IHP - International Hydrological Programme
- National Committees
- IHP-V (1996-2001)
- IHP-VI (2002-2007)
- Conflict Resolution (PC-CP)

WWAP - World Water Assessment Programme
- A UN Initiative
- Challenges
- Case Studies
- Conflict Resolution (PC-CP)

Water Events
- by theme

IN FOCUS

October 20-25: World Population Awareness Week 2003 focuses on water
This year, World Population Awareness Week (WPAW), initiated by the [Population Institute](#) in 1985 and observed October 20 to 25, focuses on water scarcity. The theme, "Water: the 21st Century Crisis", reminds us that over the next 20 years, the world's population will increase from 6 billion to around 7.2 billion, with increasing competition for available water resources. By 2025, it is estimated that some 80 percent of the world's population in 50 countries will suffer from water scarcity.

[Read the [manual for WPAW 2003](#), in PDF]
[For more information [visit the official site](#) or contact field2@populationinstitute.org]

NEWS

October 8th : International Day for Disaster Reduction
The theme for this year's International Day for Disaster Reduction, celebrated on October 8th, is 'turning the tide on disasters towards sustainable development'. According to the UN Secretary-General, "this theme reminds us, during the International Year of Freshwater, that the task is not just to preserve water resources to sustain life, but also to reduce the capacity of water to take life away." Today, more than 90% of all disasters around the world are water-related. Under the leadership of the [International Strategy for Disaster Reduction's](#) (ISDR), the 2003 [World Disaster Reduction Campaign](#) looks at how to cope with water-related hazards, highlighting the importance of public awareness and reducing the impacts of these hazards.

RESOURCES

International Year of Freshwater 2003
[[UNESCO Director-General's Statement - PDF](#)]

International Glossary of Hydrology
This glossary is a contribution to the International Hydrological Programme of UNESCO by the French National Hydrology Committee. Available in 12 languages.

UN World Water Development Report
22 United Nations agencies and convention secretariats have combined their expertise to produce the most comprehensive report on the state of the world's freshwater resources. [Click here](#)

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