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Green Development and Water Resources Management

School of Civil Engineering, AUTh



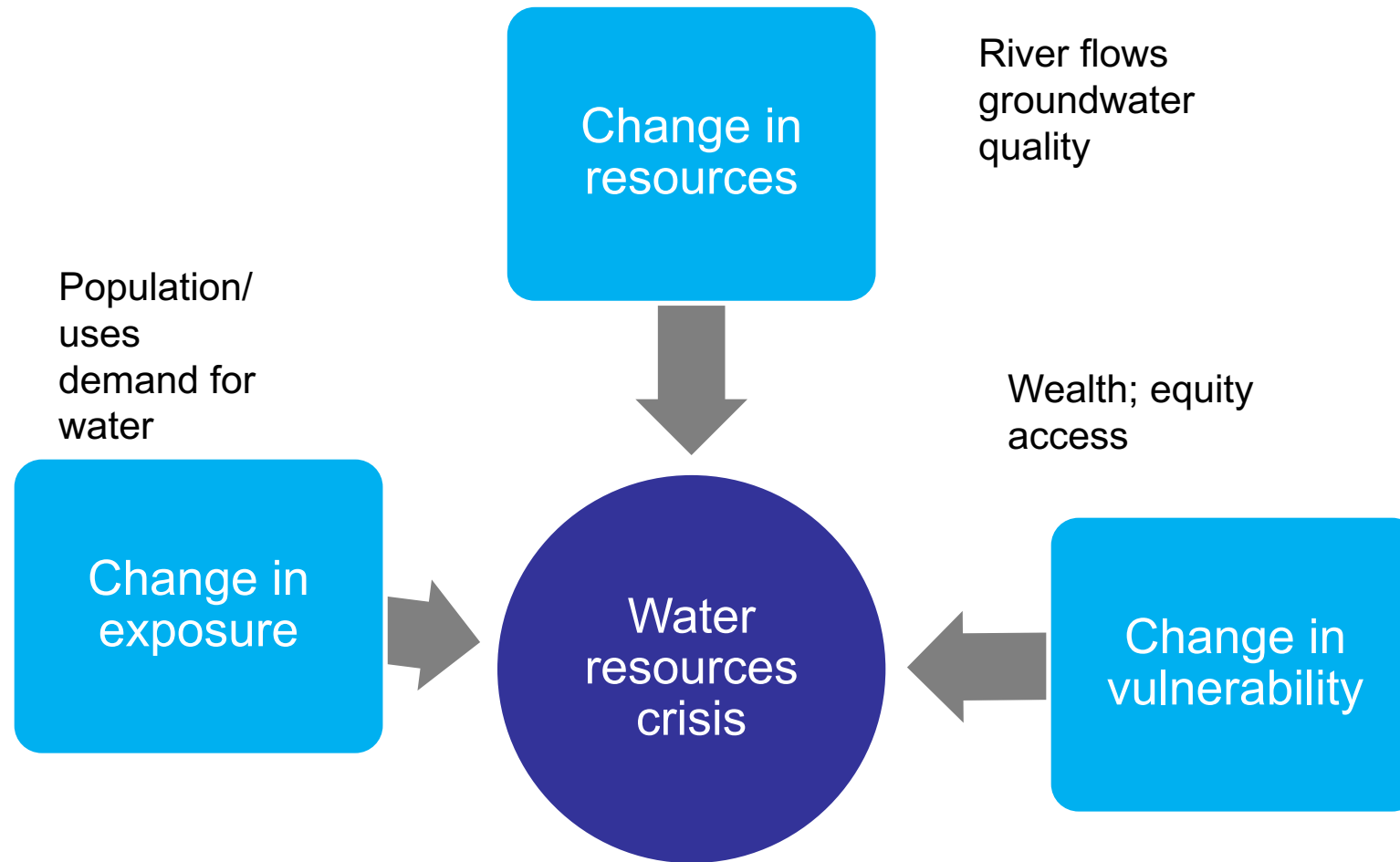
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The context of change and the need for adaptation

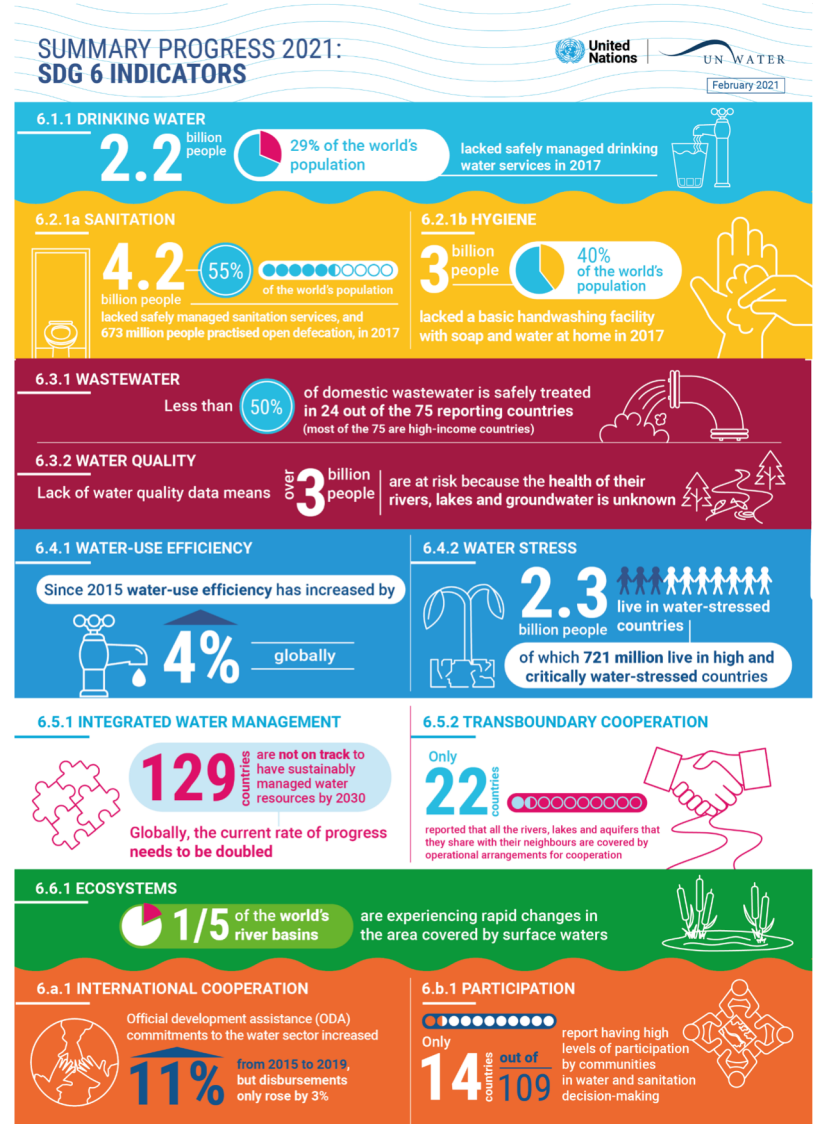
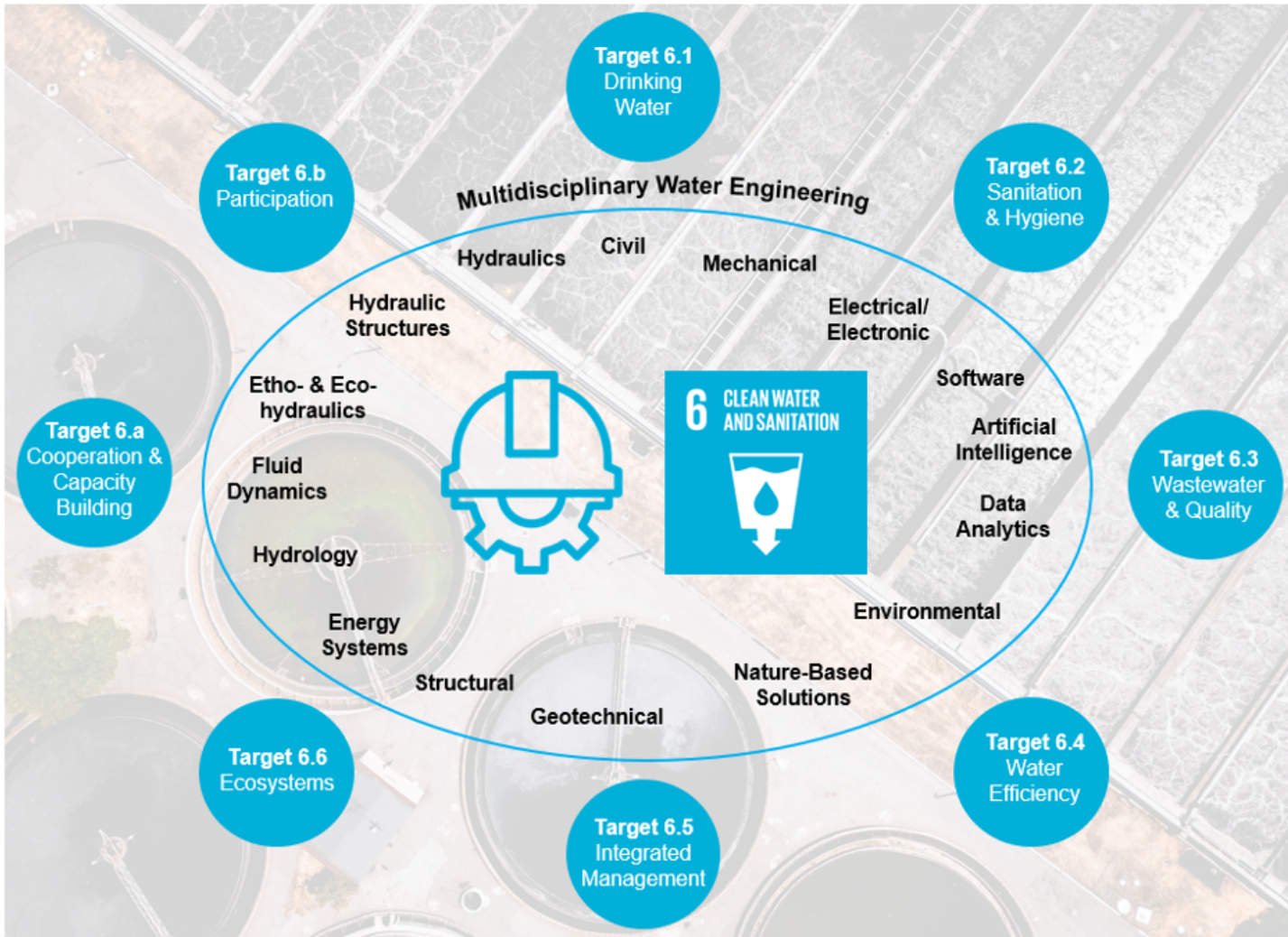


- 93% of the climate effects will be felt in the water sector
- The planet is facing a 40% shortage all in water supply by 2030
- The global population increased by three-fold in the 20th century but water use increased by six-fold
- Transboundary water dependencies, overlapping and shifting political and administrative boundaries affecting shared water bodies, challenge global water security

The changing water scene



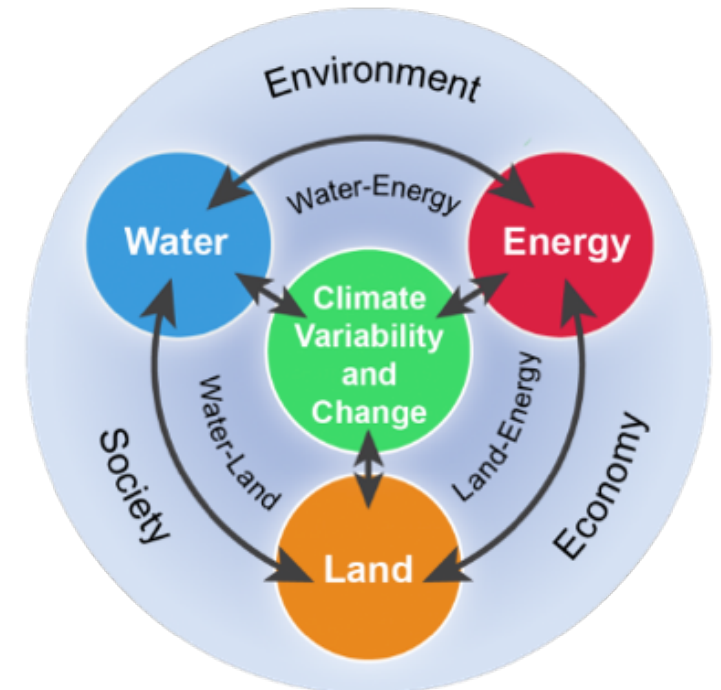
SDG6 and Engineering



The Green Economy is a holistic conversion of the current socio-economic paradigm into a **NEW DEVELOPMENT MODEL**

- Improving resource efficiency
- Ensuring ecosystem resilience
- Enhancing social equity

Energy, Water, Land, and Climate Interactions



Green Development principles

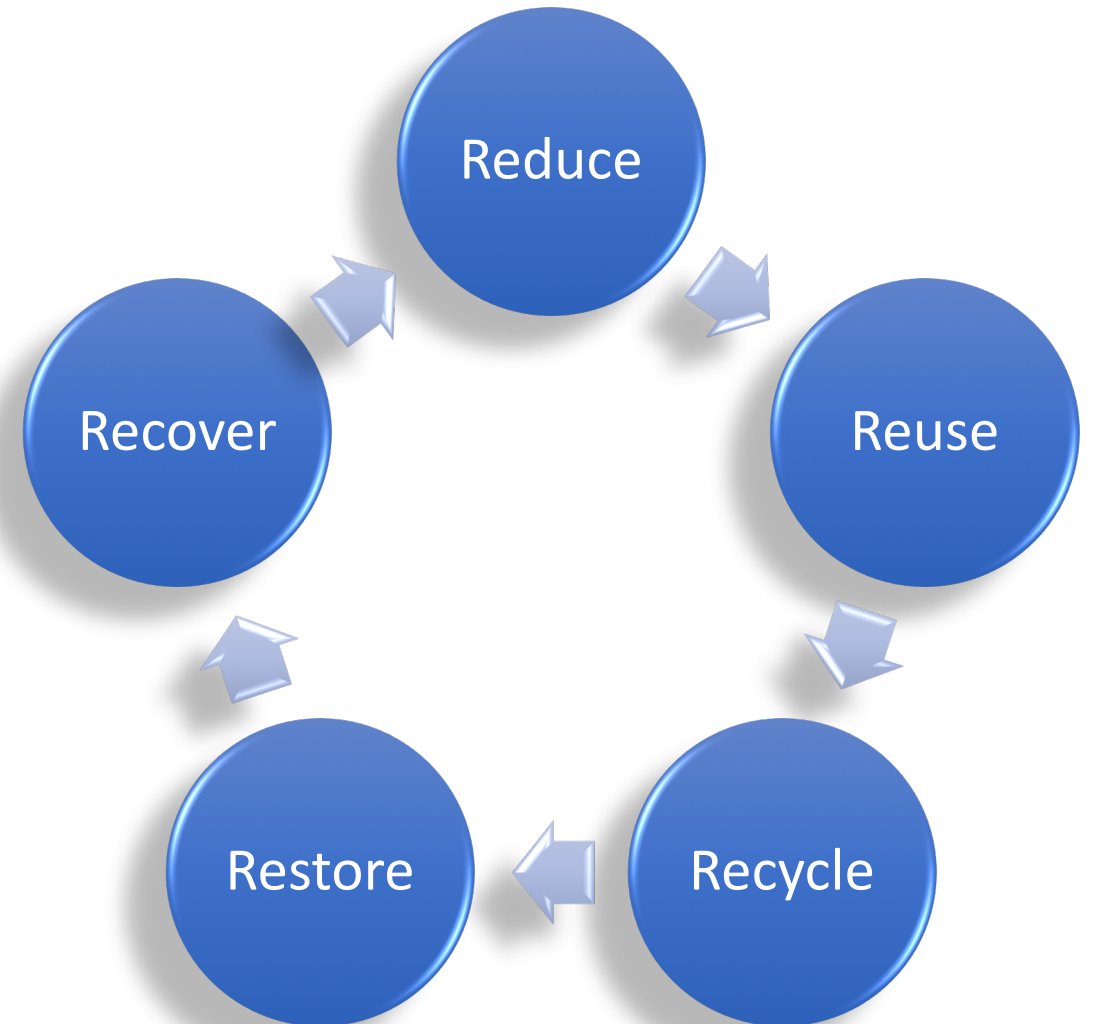


- **Decoupling** natural resource use and environmental impacts from economic growth
- **Conservation** through resource efficiency technologies that can enable users in different sectors to reduce water use, or/ and promote sustainable water use.
- Creation of employment (**green jobs**)
- **Interference of the state** to ensure economic development, environmental protection and social equity



GREEN ECONOMY

A new “water culture”



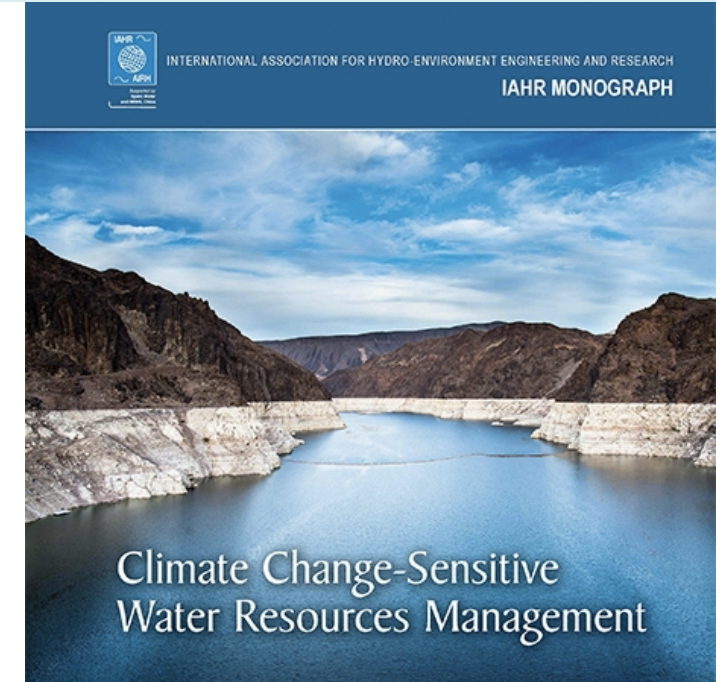
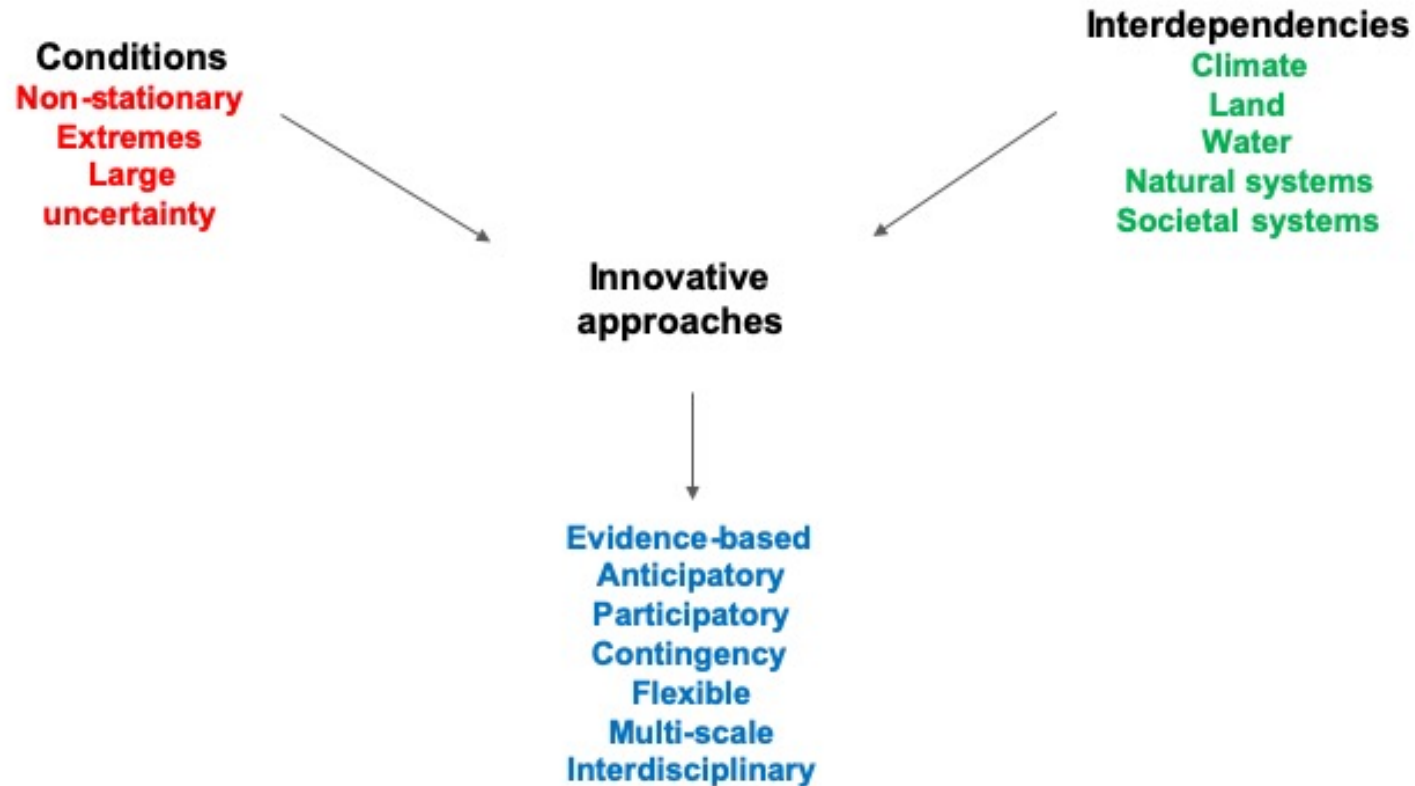
A “water smart” society – 3Rs



- Rediscover the true value of water for society, the environment and the economy
- Restore trust among people and the earth
- Reduce the pressure on planet by rethinking “all about water”

From water supply and sanitation to agriculture, energy, and industry, seek the benefits of an **improved integration** of the values of water across the full water development or engineering cycle

Green Development & WRM



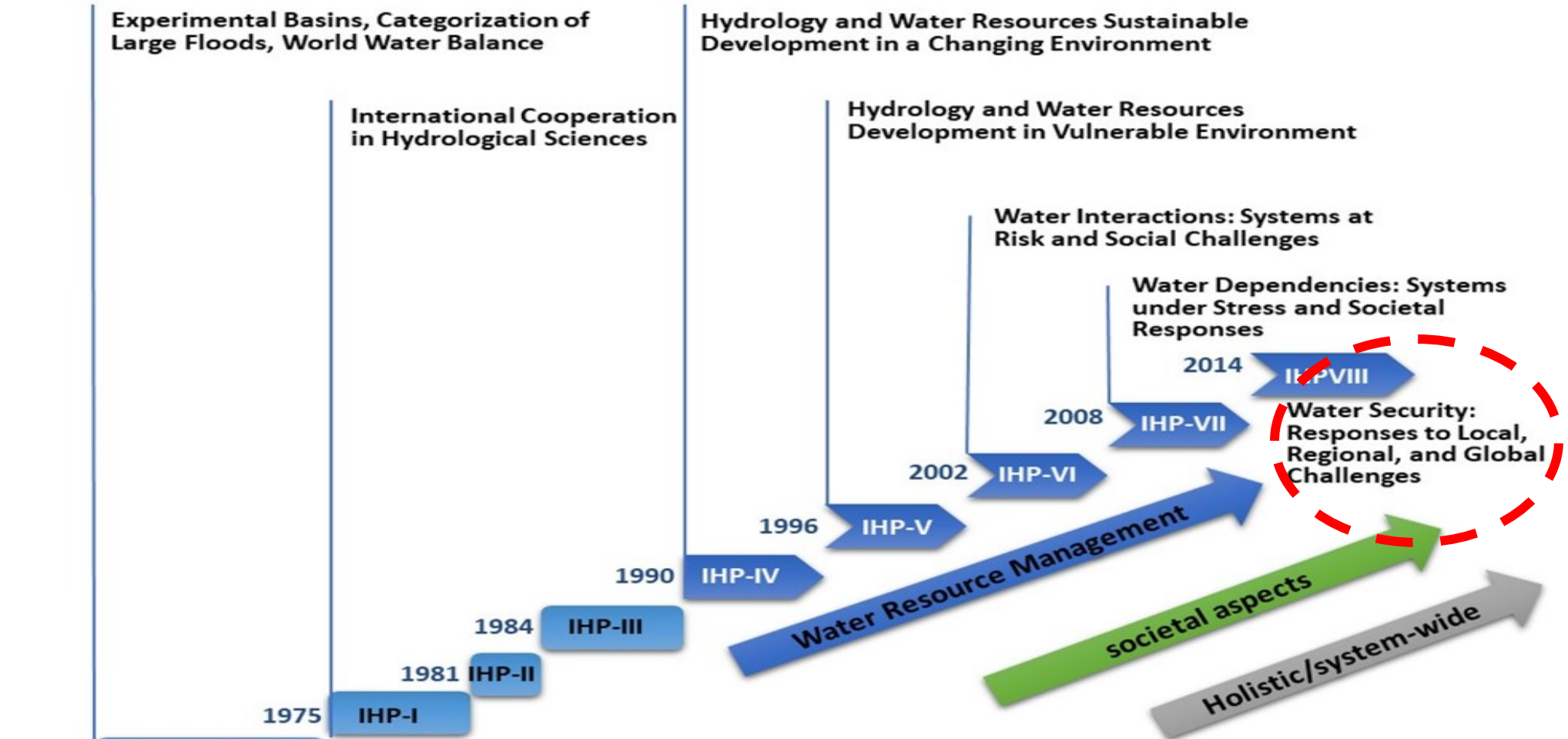
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The Rebound Effect... by Garfield



UNESCO's approach



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The AUTh Unesco cat. II Water Center for Integrated and Multi-disciplinary Water Resources Management

- Define methodology for flood risk mapping
- Major contributions in groundwater vulnerability assessment.
- Knowledge of hydro-technologies of ancient civilizations(on urban water)
- Development of innovative tool for ecological water quality assessment.
- Eco-innovative bio-treatment of waste waters with biofuel production.
- “Smart” agriculture in water scarce areas .
- Climate change effects on aquatic ecosystem structure and functioning.

The development of integrated and multidisciplinary approaches for research, education, capacity building, communication and policy advice activities, with a particular focus on transnational and transboundary water systems management.



The role of AUTH CIMWRM and of the Universities in achieving GD



- Delivery of training programs for teachers, practitioners, on modern teaching methods, developing new types of IT-technology, including the best practices of relevant partners in the field of water resources management.
- New modules on education programs, training on the new educational technologies, project-oriented, with the greatest possible involvement of experts from the industry or the government and control in the learning process, as well as in research and innovation.
- **Using universities as communication platforms to create a more effective dialogue between public authorities - Industry and academia on sustainable water management and green development at different levels**
- Development of training programs of research techniques, new technologies, innovative approaches, using international experience.
- Search and development of methods for activating inter-institutional and also international cooperation in sustainable water management.

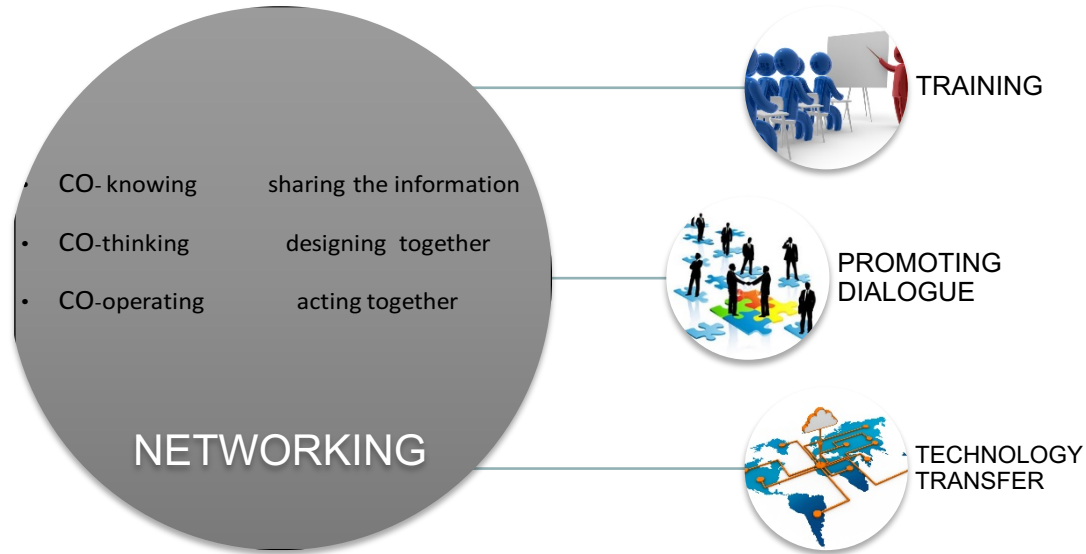
Water resources management goes beyond the “water science”



The value of cooperation between sciences – much broader education

- ✓ **rural sociology**
- ✓ **conflict analysis- causal analysis**
- ✓ **urban regimes- urban metabolism of water**
- ✓ **political ecology**
- ✓ **environmental justice**
- ✓ **socio-ecological systems**
- ✓ **“Big data”**

EDUCATION IS THE MOST POWERFUL TOOL TO GENERATE THE CHANGE



“If your plan is for one year, plant rice.
If your plan is for ten years, plant trees.
If your plan is for one hundred years, educate children.”

KUAN CHUNG (7th CENTURY BC)



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UNESCO CENTRE ON INTEGRATED AND MULTI-DISCIPLINARY WATER RESOURCES MANAGEMENT



THANK YOU
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