

UNESCO - IHP

International Hydrological Programme contribution to the World Water Security

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IHP-LAC

International Hydrological Programme
for Latin America and Caribbean countries



United Nations
Educational, Scientific and
Cultural Organization



International
Hydrological
Programme

World Water Day 2013
International Year of Water Cooperation

The Global Water Situation

- * Water resources challenges to attain water security are increasing
 - * Water scarcity and uncertainty
 - * Regional and temporal variations
 - * Availability of water: Impacts on people, energy, food and ecosystems
- * The Millennium Development Goals set in Rio+20
 - * Capacities of populations to access to adequate quantities and qualities of water and protection against water related hazards
- * UNESCO's International Hydrological Programme Contribution to World Water Security : IHP – Phase VIII, 2014 - 2021

Water Security: a key challenge for the 21st century

Around 80% of the world's population is exposed to high levels of threat to water security, in terms of water availability, demand and hazards among other factors. Between 6 to 8 million human beings are killed each year from water-related disasters and diseases, particularly women and vulnerable groups

Water security is defined as “the capacity of a population to safeguard access to adequate quantities of water of acceptable quality for sustaining human and ecosystem health on a watershed basis, and to ensure efficient protection of life and property against water related hazards – floods, landslides, land subsidence, and droughts”.



UNESCO Water Vision

UNESCO's programmes and projects which are worldwide implemented through its Water Family, strive for water security for all, in such a way that water resources are used harmonically and balanced for municipal, industrial, irrigation and environmental purposes. Water must be just for everyone, regardless gender, social class, age or ethnicity. In addition, negative impacts of droughts and floods on human health, goods, or on the environment shall be minimized.

“Water security : Responses to Local, Regional, and Global challenges

IHP – Phase VIII, 2014 – 2021

- * Understanding interfaces and interconexions
 - * Water, energy and food
 - * Human behaviours, cultural beliefs and attitudes toward water
- * Research in social and economic sciences
 - * Understand and develop tools to adapt humans impacts of changing water availability

IHP – VIII, 2014 – 2021 Challenges

- * Technical
- * Institutional
- * Political
- * Financial
- * Informations
- * Futur Changes

IHP – VIII, 2014 – 2021

Opportunities

- * Strategies Planning Process
- * Integrated water resources management
- * Sustainable, flexible and resilient technologies
- * Emerging economic development
- * Emerging urban centres in developing countries
- * Green Economy

IHP – VIII, 2014 – 2021 Priorities

- * Consultation with member states
- * Identification of regional needs and priorities
 - * Hydrological research, Water management, Education
- * Identified priorities for Water security
 - * Global Change
 - * Water related disasters, Climate/hydrological variability, Water scarcity, Water quality
 - * Governance
 - * Human dimension
 - * Integrated Water Resource Management (IWRM)
 - * Transboundary water resources management

Putting Science Into Action

- * Promoting
 - * Transformation of information and experience into answering local and regional needs
 - * Development of new tools to adapt IWRM to global changes
 - * Building competences to meet the challenges of today's global water challenges
- * Establishing knowledge platforms to communicate, exchange and share the information and develop new ideas
 - * stakeholders, researchers, local institutions, policy makers, and education entities
- * Supporting policy making and decision taking

Putting Science Into Action

- * Using IWRM to:
 - * Balance stakeholders interests:
 - * Agricultural, industrial, domestic and environmental
 - * Help member states to adapt their strategies to make their ecosystems and socioeconomic systems more resilient to climate variability and changes and population growth
- * Adaptive Integrates Water Management (AIWM)
 - * Social learning approach : an iterative process

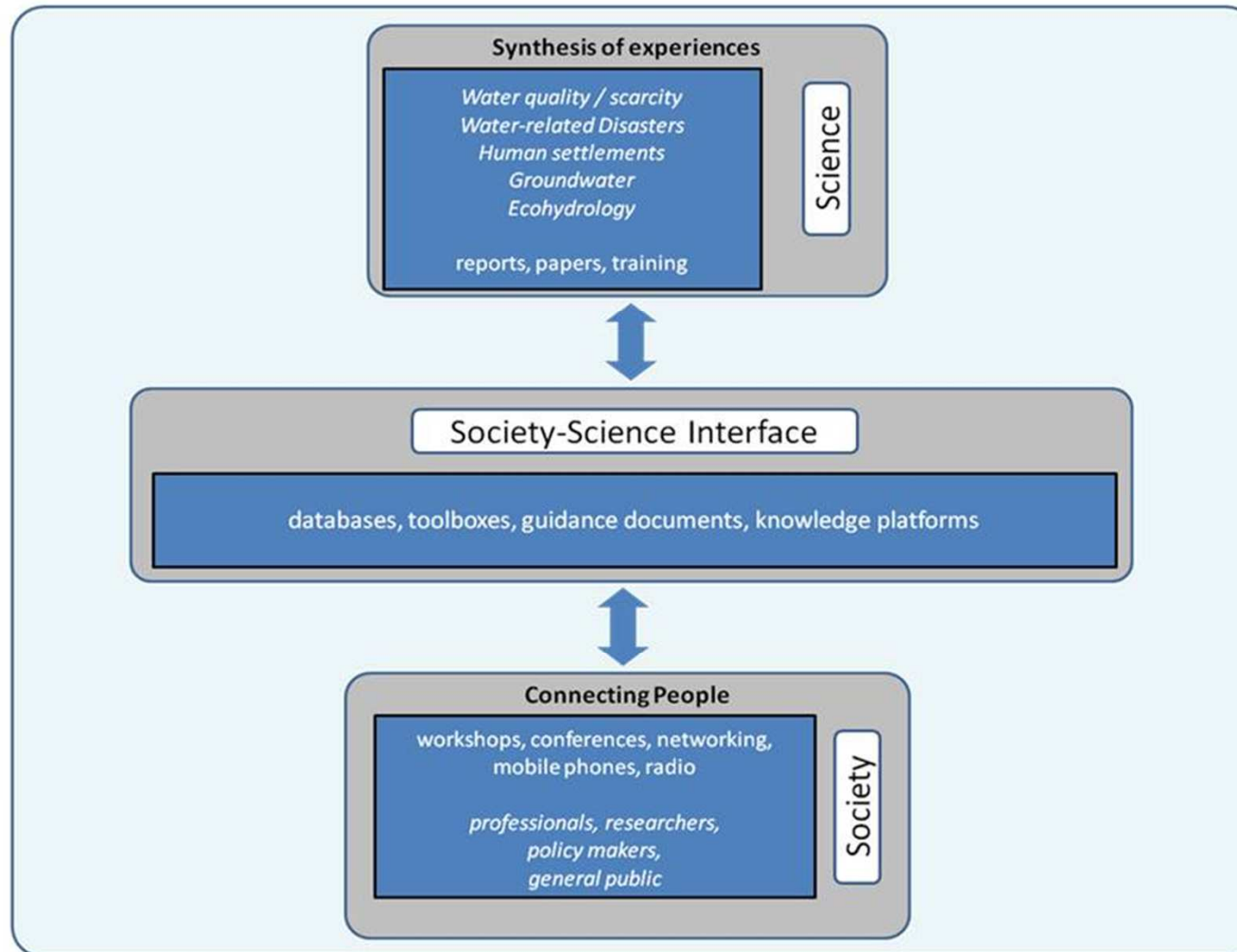
Putting Science Into Action

- * Social learning as a “key processes” of successful water governance
 - * Offers scientists and stakeholders a framework for working together to:
 - * Understand each other’s value systems for water decision-making
 - * Develop trust
 - * Define jointly the nature of the problem they are addressing
 - * Engage in fact-finding
 - * Develop and assess different strategies for addressing problems
 - * Carry out a plan and assess its success in achieving their goals (Pahl-Wostl et al., 2008; Mostert et al., 2008)

Putting Science Into Action

- * Main tasks to make science supporting policy making and decision-taking processes related to water issues at various levels (local, national and regional)
 - 1) Integrate and disseminate local knowledge related to adaptation and mitigation measures to cope with water-related issues
 - 2) Identify and promote sustainable good practices for dealing with water related issues
 - 3) Transform and enhance local knowledge into adaptive capacity

Putting Science Into Action



IHP – VIII, 2014 – 2021

Themes and focal areas



Water-related
Disasters and
Hydrological
Change



Groundwater
in a Changing
Environment



Addressing
Water
Scarcity and
Quality



Water and
Human
Settlements
of the future



Ecohydrology,
Engineering
Harmony for
a Sustainable
World



Water
Education,
Key for Water
Security

Water Security: Responses to Local, Regional, and Global Challenges



Freshwater is a vital resource for human health, prosperity and security

Crucial for sustainable development, poverty eradication, gender equality, food and energy security and the preservation of ecosystems, among other critical issues

Water has a specific target under the Millennium Development Goals, a thematic area in the consultation for the post-2015 Sustainable Development Goals and is recognized as a human right.

Freshwater is a limited resource and unevenly distributed in space and time and billions of people are affected by lack of water, poor water services, pollution or water related disasters

Global challenges including climate change will increase the pressure on water resources

UNESCO is ready to support countries, social and international organizations, private and public companies on this process to address these challenges

UNESCO'S EXPERIENCE IN WATER SCIENCES

UNESCO's experience in water sciences started in 1956, when it began to address water problems in arid lands.

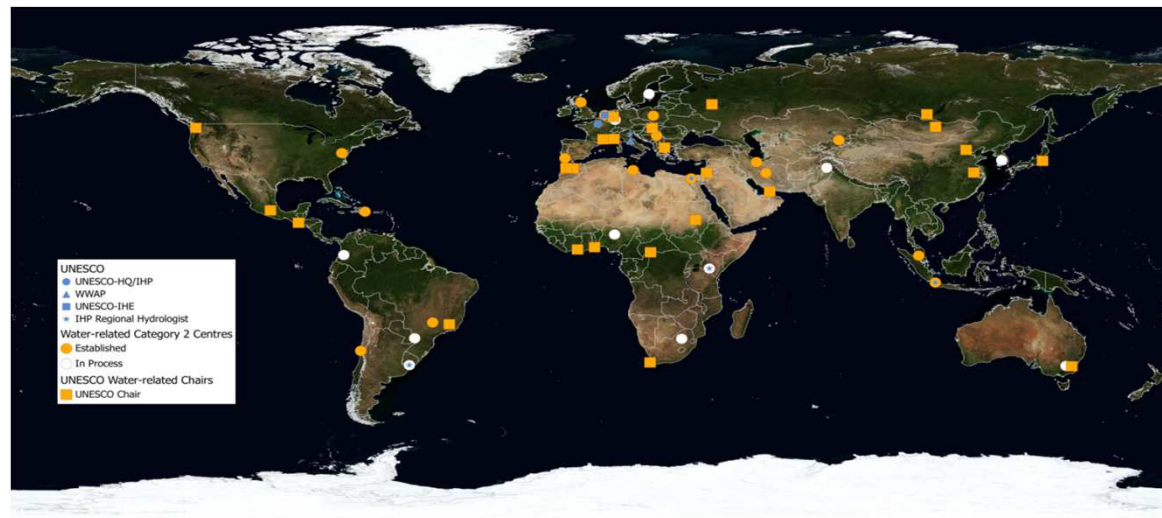
UNESCO brings science and expertise to address integral and sustainable management of water and water related disasters risks.

UNESCO's leadership in the field of freshwater has been considered by an Independent External Evaluation as “the leading United Nations agency for water” and its International Hydrological Programme (IHP) as the most influential international programme on water.

UNESCO'S CAPACITY

UNESCO water family, comprising the International Hydrological Programme (IHP) with its 168 National Committees, UNESCO-IHE Institute for Water Education, the network of water-related Centres and Chairs and the World Water Assessment Programme (WWAP).

In 2013 the Division leads within UNESCO the International Year of Water Cooperation coordinated by the Organization on behalf of UN Water



UNESCO'S WATER ACTIVITIES

Axis 1: Mobilizing international cooperation to improve knowledge and innovation to address water security challenges – UNESCO promotes international and regional cooperation in the field of water by fostering alliances, building intellectual exchange, encouraging knowledge sharing and operational partnerships for water security.

Axis 2: Strengthening science-policy interface to reach water security at local, national, regional and global levels – Water security can only be attained via the development of suitable policies, based on the sound knowledge of water and of its interactions. UNESCO assists policy makers to improve the freshwater governance. To this end, UNESCO cooperates with existing institutions and national partners to mobilize the scientific community, including local experts, to build scientific consensus and provide guidance to policy makers for informed decision-making. Under this axis UNESCO supports the development and implementation of international norms and standards, and the provision of guidance for the integrated management of water resources, among other issues.

Axis 3: Developing institutional and human capacities for water sustainability innovation to address water security challenges – UNESCO promotes water education and training at all levels, including aspects related to knowledge, skills and values. This includes assistance in including water issues into formal and informal education, guidance on the development and evaluation of specific water education curricula, assistance on educational policies and the development of educational materials.

THE UNESCO WATER FAMILY IN FEW WORDS

UNESCO-IHE Institute for Water Education

Established in 1957 and formally part of UNESCO since 2003 is located in Delft, The Netherlands. Since 1957, IHE has delivered over 14,000 professionals from 162 countries. Over 400 Masters and 300 PhD students on different water areas, mainly from developing countries, are graduated each year, and 240 professionals attend specialized training programs in the fields of water, environment and infrastructure.

The World Water Assessment Programme (WWAP)

WWAP is a UN-Water flagship programme hosted by UNESCO. It brings together 30 UN agencies to provide an up-to-date global overview of the state and uses of freshwater, critical water-related problems and societies' coping mechanisms, in the form of periodic World Water Development Reports (WWDRs). In the next years WWAP will also produce thematic reports. The one expected in 2014 will be on water and energy.

Water-related Centres

The 18 established centers contribute to implement the IHP at the international and regional level. They are to exchange information, perform theoretical and experimental research and advanced research. They cover the following themes: Arid, Semi-Arid and Coastal Zones, Climate Change, Ecohydrology, Building, Erosion and Sedimentation, Glaciers, Groundwater, Hazards and Risk Management, Hydrology, Hydroinformatics, Indigenous Knowledge, IWRM, Legal Aspects, Transboundary water, Urban Water, Water Harvesting, Water security.

Chairs and UNITWIN networks

The 29 chairs and networks promote intellectual cooperation through twinning and other linking arrangements among institutions and academics to foster access and sharing of knowledge on water. They cover the following themes: Conflict Resolution, Ecohydrology, Economics, Groundwater, Hydrogeology, Hydro informatics, Membranes applied sciences for environment, Mountain Conservation and Watershed Management, Surface water, Sustainable Water Resources Management, Transboundary Water Governance, Wadi Hydrology, Women and Urban Water.

Theme 1: Water Related Disasters and Hydrological Change

- 1) Risk management as adaptation to global changes
- 2) Understanding coupled human and natural processes
- 3) Benefiting from global and local Earth observation systems
- 4) Addressing uncertainty and improving its communication
- 5) Improve scientific basis for hydrology and water sciences for preparation and response to extreme hydrological events

Theme2: Groundwater in a Changing Environment

- 1) Enhancing sustainable groundwater resources management
- 2) Addressing strategies for management of aquifers recharge
- 3) Adapting to the impacts of climate change on aquifer systems
- 4) Promoting groundwater quality protection
- 5) Promoting management of transboundary aquifers

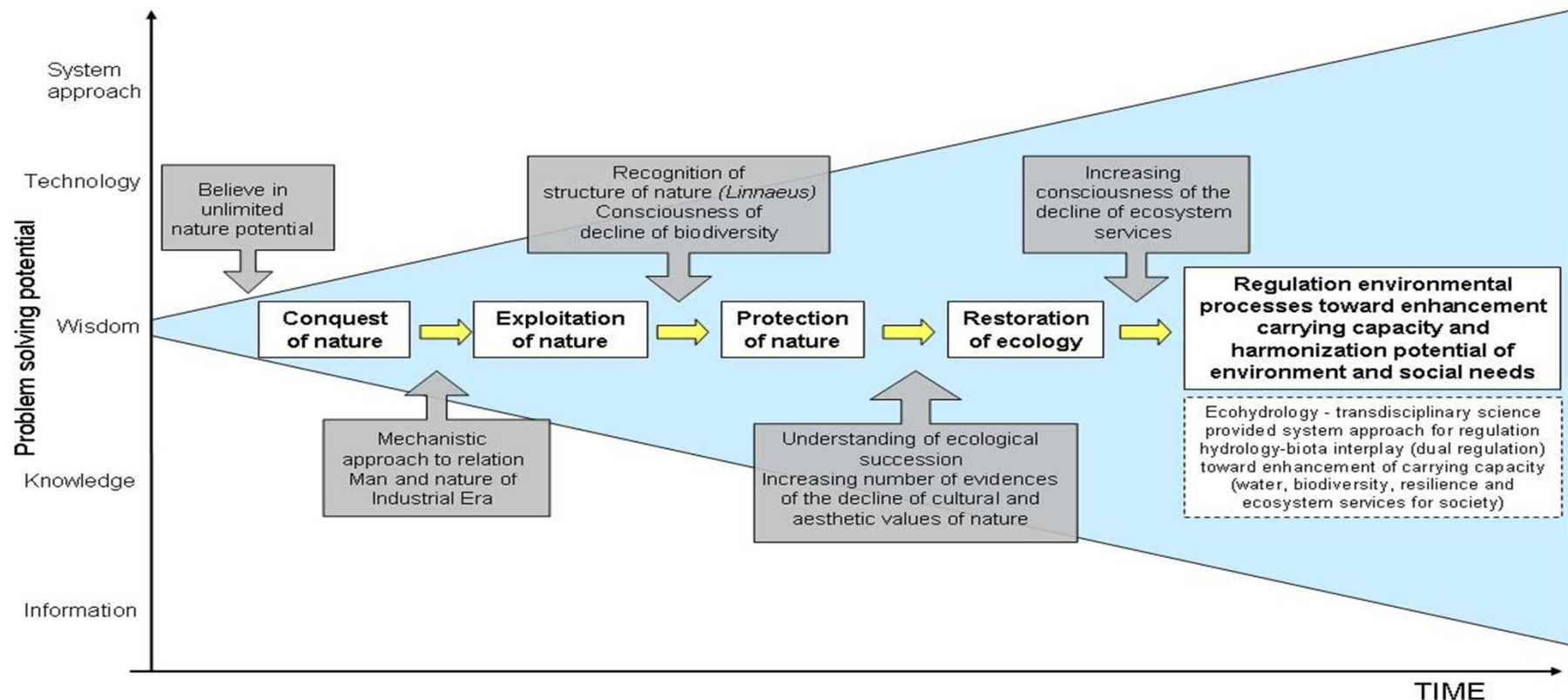
Theme 3: Addressing Water Scarcity and Quality

- 1) Improving governance, planning, management, allocation, and efficient use of water resources
- 2) Dealing with present water scarcity and developing foresight to prevent undesirable trends
- 3) Promoting tools for stakeholders involvement and awareness and conflict resolution 3.4 – Addressing water quality and pollution issues within an IWRM framework - improving legal, policy, institutional, and human capacity
- 4) Promoting innovative tools for safety of water supplies and controlling pollution

Theme 4: Water and Human Settlements of the Future

- 1) Game changing approaches and technologies
- 2) System wide changes for integrated management approaches
- 3) Institution and leadership for beneficiation and integration
- 4) Opportunities in emerging cities in developing countries
- 5) Integrated development in rural human settlement

Theme 5: Ecohydrology, Engineering Harmony for a Sustainable World



Ecohydrology concept in the perspective of evolution of relations between man and environment (Zalewski, 2011)

Theme 5: Ecohydrology, Engineering Harmony for a Sustainable World

- 1) Hydrological dimension of a catchment – identification of potential threats and opportunities for a sustainable development
- 2) Shaping of the catchment ecological structure for ecosystem potential enhancement — biological productivity and biodiversity
- 3) Ecohydrology system solution and ecological engineering for the enhancement of water and ecosystem resilience and ecosystem services

Theme 5: Ecohydrology, Engineering Harmony for a Sustainable World

- 1) Urban Ecohydrology – storm water purification and retention in the city landscape, potential for improvement of health and quality of life
- 2) Ecohydrological regulation for sustaining and restoring continental to coastal connectivity and ecosystem functioning

Theme 6 : Water Education, Key for Water security

- 1) Enhancing tertiary water education and professional capabilities in the water sector
- 2) Addressing vocational education and training of water technicians.
- 3) Water education for children and youth
- 4) Promoting awareness of water issues through informal water education
- 5) Education for transboundary water cooperation and governance



Thank You!



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