United Nations
Educational, Scientific and
Cultural Organization

World Water
Assessment Programme

UN WATER

WWAP and IHP activities serving the scientific community

IHP-VII: Water Dependencies: Systems under Stress and Societal Responses

3 Pillars

FRIEND

HELP

IHP Initiatives
PCCP
ISI
IFI
TIGER
G-WADI
GRAPHIC
IAHS-PUB

IHP - VII
New Initiatives
Water Centres

Hydrological Research

Education,
Transfer of knowledge, Capacity building

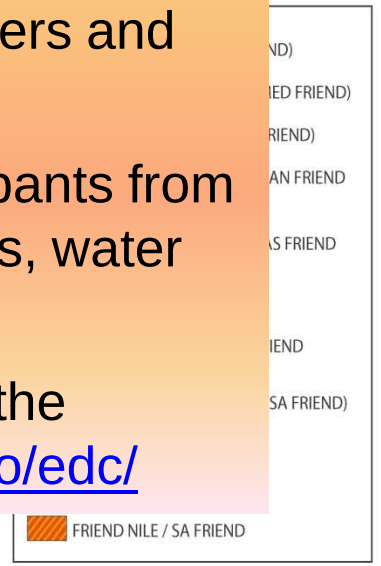
Water Resources Management

FRIEND - A global Network Project

Flow Regimes from International Experimental and Network Data

MAJOR ACHIEVEMENTS

- Publishing text book on droughts (579 pp) and a manual on low flow design (200 pp) (in co-operation with WMO)
- Generate scientific knowledge (over 480 scientific papers and reports (FRIEND 2010)
- Developing course material (28 courses to 447 participants from 77 countries) on extremes, data bases, GIS, sediments, water quality, glaciers, water resources management.
- Sharing knowledge on low flows and drought through the European Drought Centre (EDC) http://www.geo.uio.no/edc/



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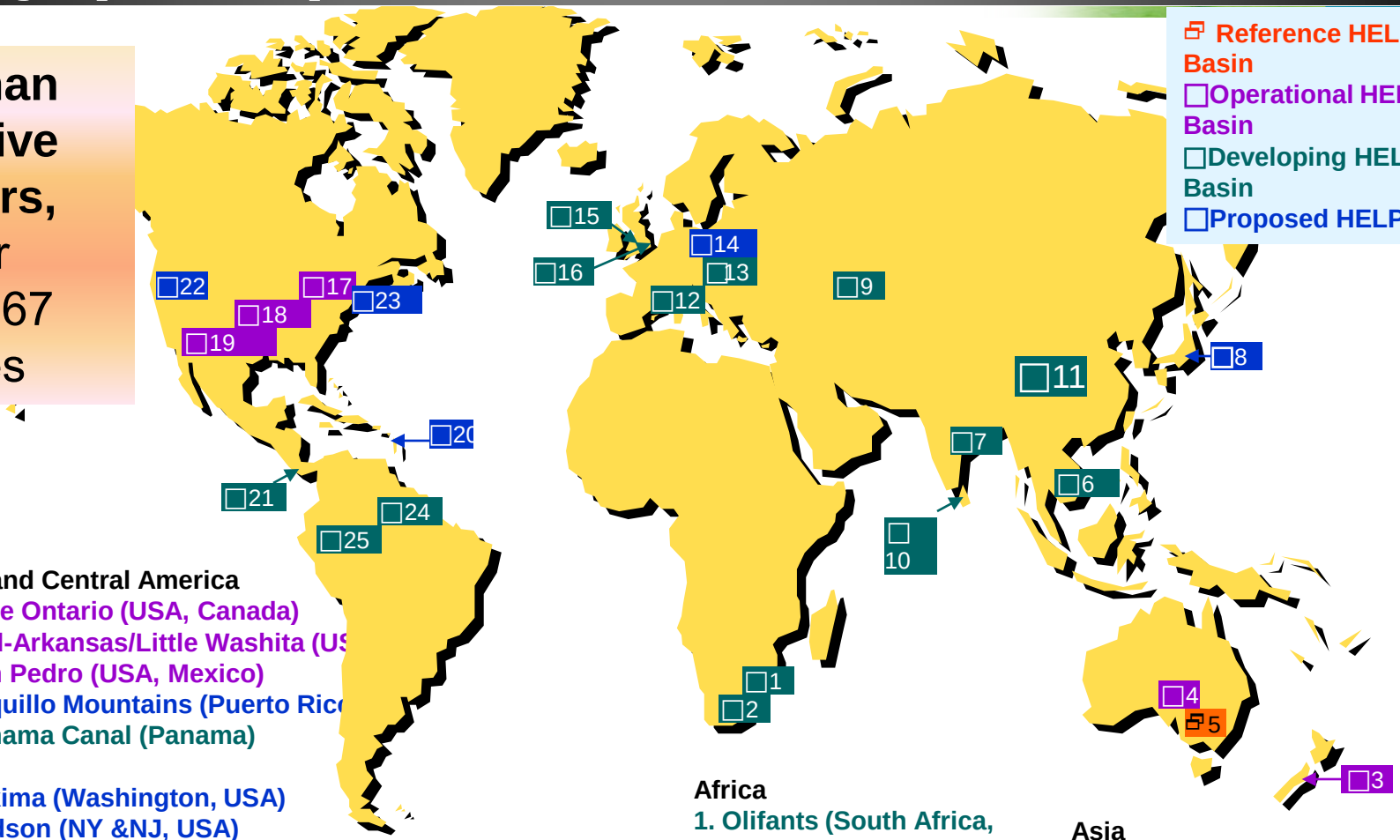
Hydrology for the Environment, Life and Policy (HELP) Basins

More than 260 active members, 91 River Basins, 67 countries



North and Central America
17. Lake Ontario (USA, Canada)
18. Red-Arkansas/Little Washita (US
19. San Pedro (USA, Mexico)
20. Luquillo Mountains (Puerto Ric
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

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)

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Assessment of Flood Forecasting and Warning System for Humid Tropic Regions

Partners: UNESCO-IHP Jakarta office and ICHARM and HTC

Established in Indonesia, Malaysia, the Philippines, Thailand and Vietnam

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International Sediment Initiative (ISI)

Objectives:

- promote the elaboration and monitoring of sediment data
- develop appropriate methods and procedures in sediment management

Des Walling, 2008

Recent Activities:

- Global evaluation of sediment transport
- Case studies for river basins, review of erosion and sediment related research
- Global erosion and sediment information system (UNESCO IRTCES center, Peking)
- Networking, education and training

UNESCO addressing hydrological extremes: knowledge base and capacity for prediction, adaptation and mitigation

IFI: International Flood Initiative

World Meteorological Organization

IAHS AISH

United Nations University

"advancing knowledge for human security and development"

International Strategy for Disaster Reduction

Science for Global Insight

International Centre for Water Hazard and Risk Management (ICHARM)

(Tsukuba, Japan)

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WMO

UNITED NATIONS

UN HABITAT

unicef

WHO

UNIDO

UN WATER

UNDP

UNESCO

UNEP

The World Water Assessment Programme is a working example of system-wide cooperation

IFAD

UNHCR The UN Refugee Agency

As the flagship program of UN-Water, it brings together 28 UN agencies and other stakeholders

WORLD BANK

UNITED NATIONS UNIVERSITY

The reporting mechanism of the UN System, WWAP monitors progress towards internationally agreed-upon goals about water

IAEA Water Resources Programme

CBD

FAO FIAT PANIS

UNFCCC

International Strategy ISDR for Disaster Reduction

UNCCD

UNESCO United Nations Educational, Scientific and Cultural Organization

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Topics to be covered

- 4th edition of the WWDR
- Second Generation of Global Water Scenarios
- Capacity Building
- Indicators
  - WWAP Expert Group on Indicators, Monitoring and Databases
  - WWAP Pilot Study on Indicators
  - UN Water Key Indicators

Overarching theme of WWDR4

- **Managing Water under risk and uncertainty**

❖ Take water out of being a problem to being a resource that can be used to address and overcome challenges.

❖ Establish a common understanding and an acceptable definition of the Risk and Uncertainty theme in the context of water resource, their use and management.

❖ Three modules comprising 14 challenge area and 5 regional reports

Uncertainty, Risk and Possible Futures of Global Water Systems

A Second Generation of Global Water Scenarios

- ❑ Exploring alternative futures of the world's water to 2050
- ❑ Stand-alone project; Phase 1 contributing to WWDR4

WHY *NEW* SCENARIOS?

- The last scenario development exercise dates back one decade.
- Important new policy initiatives such as MDGs have emerged since then.
- The need to incorporate additional driving forces such as CC, globalization and security issues and update the information they are based on.
- The evolution of the drivers and the logic behind them, should be re-examined.
- In most cases there are no existing water scenarios at the national and sub-national levels.
- Linkages are possible with other scenario processes being undertaken at the global level.

Drivers researched:

- Climate change and variability
- Water resources, including groundwater and ecosystems
- Governance and Institutions (including the right to water)
- Technology
- Economy and Security
- Agriculture
- Infrastructure
- Demography
- Ethics, society and culture (includes questions of equity)
- Politics

Uncertainty, Risk and Possible Futures of Global Water Systems

Ranking of importance of developments by experts

- Agriculture
(Top five)

- Technology
(Top five)

- Ethics
(Top five)

- Economy and Security
(Top five)

- Politics and Governance
(Top five)

WWAP Expert Group on Indicators, Monitoring and Databases (EG-IMD)

- ❑ Supports WWAP's work on indicators
- ❑ Open participation of individuals on a rolling basis

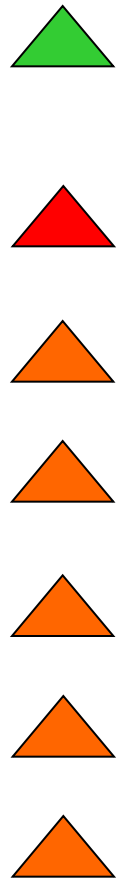
- ✓ Prepared a short list of key dimensions and indicators
- ✓ Drafted a proposal on future work required to report on a useful, feasible and sustainable set of indicators on key water resources issues on an ongoing basis

The proposed areas of focused work :

- **Resource availability (TARWR)**
- **Remote sensing index of water quality**
- **Wetland status and environmental services**
- **Resource use**
- **Trends and variability in precipitation**
- **Country-level WRM via peer review**

UN-Water “key indicators”

issue	Indicator
Resource availability	1- TARWR/cap
Investment	2- % national expenditure for water sector (WSS, …) over total expenditure
Climate change	3- Storage capacity compared to potential
Pressure on Water	4- Intensity of use: Total withdrawals/TARWR
Use off stream	5- Share of agricultural, domestic, industrial withdrawals / Total withdrawals
Use On stream	6- Evolution of inland fish catch (capture) and production (aquaculture)
Use & Trade	7- Share of blue, green, virtual water used to produce food in a country




data available


improving data


incomplete data

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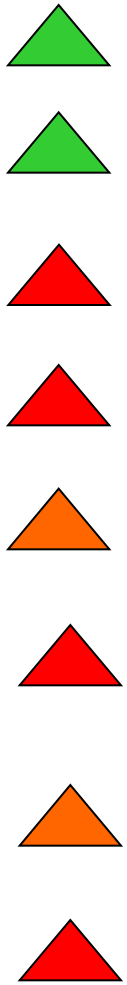
UN-Water “key indicators”

issue	Indicator
Water supply	8- % population with access to improved water supply
Sanitation	9- % of population with access to improved sanitation facilities
Food production	10- Change in water productivity in irrigated agriculture
Industry production	11- Change in water productivity in industry
Energy production	12- Change in hydropower productivity (production/ potential)
Water quality	13- Change of quality of freshwater systems (% of samples compared to standards/limits such as concentration of nutrients in freshwater, salt in aquifers
pollution	14- Urban wastewater treatment connection rates
Fresh-system	15- Change in wetlands health status (including threatened freshwater species %)



 data available  improving data  incomplete data

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WWAP Pilot Study on Indicators (PSI)

- in partnership with GTN-H and GEO / IGWCO
- innovative methodology for estimating country-level TARWR, variability and trends (not previously possible)
- hydro-meteorological and high resolution (6 minute) river network, ESRI country boundaries and surface elevation data
- used in combination with socio-economic data sets (agricultural production, health, GDP et) to create informative country profiles linking water availability and variability to socioeconomics and policies on a comparative annual basis.

WWAP Pilot Study on Indicators (PSI)

Argentina
Australia
Bangladesh
Brazil
Bulgaria
China
Colombia
Costa Rica
Croatia
Ethiopia
Germany
Ghana
Mexico
Pakistan
South Africa
Sudan
Thailand
Ukraine
Uzbekistan
Viet Nam

Participation in related work

- UN-Water Country Profiles (FAO and partners)
- UN-Water Task Force for Rio+20 (WRM at country level)
- UNSD Water Accounts