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Water



Transboundary waters: UNESCO IHP's Contribution to Science and Policy

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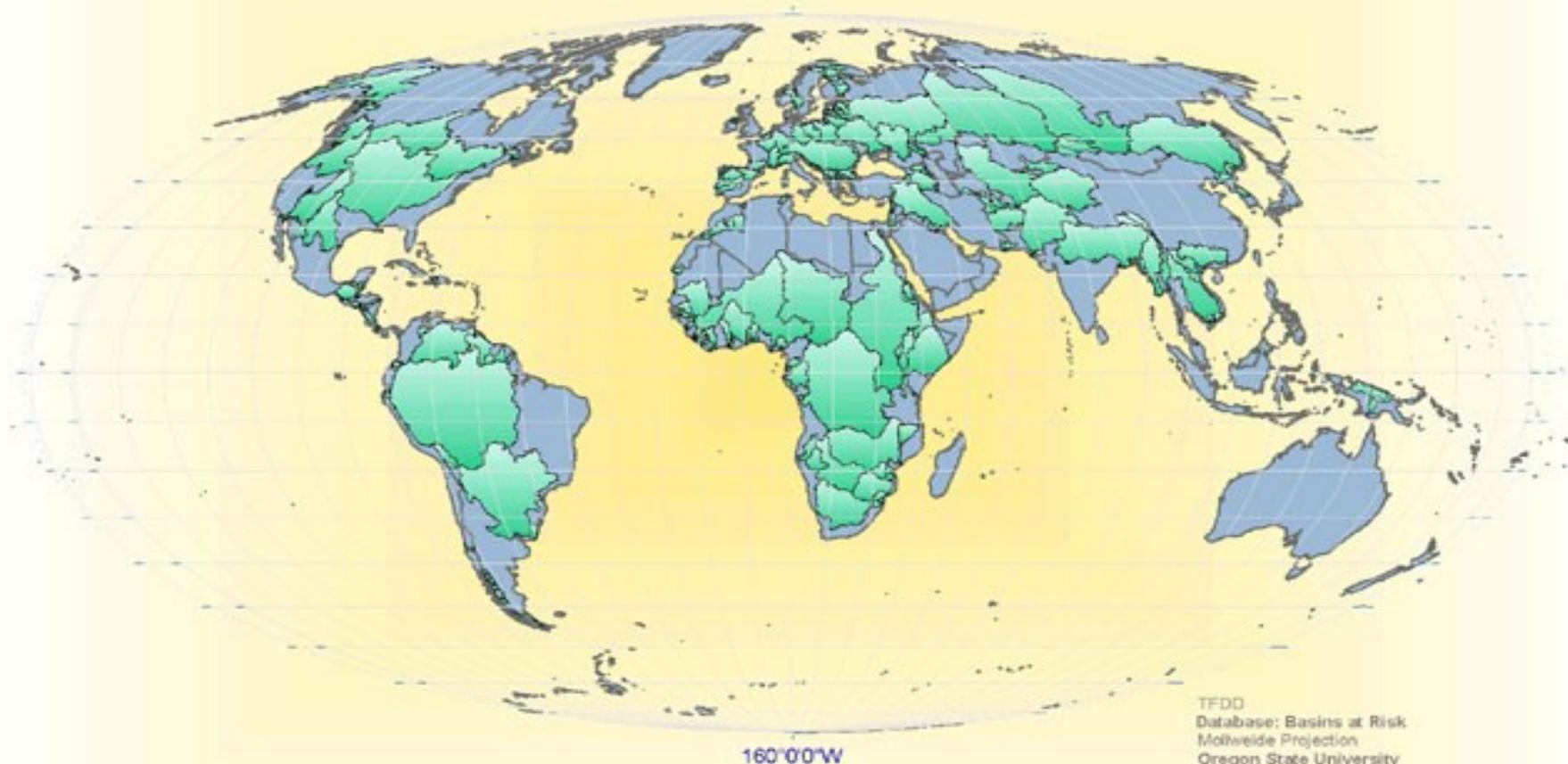


Water

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International Basins of the World



TFDD
Database: Basins at Risk
Mollweide Projection
Oregon State University
October 2000



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Water



UNESCO'S Intergovernmental Scientific Cooperative Programme in Hydrology and Water Resources

The International Hydrological Programme (IHP) is the only global intergovernmental programme of the UN system devoted to water research, water resources management, and education and capacity building for over 30 years.

The programme, tailored to Member States's needs, is implemented in six- year phases- allowing it to adapt to a rapidly changing world.



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Freshwater at UNESCO: "The three plus one pillars"

- **International Hydrological Programme- IHP**
IHP Secretariat : Paris+ Field Offices of UNESCO
National Committees in 164 Member States
- **UNESCO-IHE Institute for Water Education:**
postgraduate education for water professionals
(Delft, The Netherlands)
- **UN World Water Assessment Programme:**
periodic compilation of the World Water Development Report
(WWDR) — two issues (2003, 2006), next issue in 2009
- **Network of 17 water centers under the auspices of UNESCO (+ 10 more in the pipeline)**



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IHP Cross-Cutting and Associated Programmes

Cross-Cutting



Flow Regimes from International Experimental Network Data

- A global network to share data, monitoring and modeling techniques for scientific understanding of the water cycle



Hydrology for the Environment, Life and Policy

- Promoting Integrated Water Resources Management through stakeholder Driven Best Practice Examples

Associated Programmes

- IFI** - International Flood Initiative
- ISI** - International Sediment Initiative
- JIHP** - Joint International Isotope Hydrology Programme
- ISARM** - Internationally Shared Aquifer Resources Management
- G-WADI-** Global Network on Water and Development information in Arid Lands
- GRAPHIC-** Groundwater Resources under the Impact of Human Pressure and Climate change
- PCCP** - From Potential Conflict to Cooperation Potential
- UWMP** - Urban Water Management Programme
- WHYMAP-** World Hydrogeological Map



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Seventh Phase of IHP (2008-2013) Water Dependencies: Systems under Stress and Societal Responses

Cross-cutting IHP programmes

- HELP
- FRIEND



Key Theme:
Associated IHP programmes

- IFI
- ISI
- PCCP
- JIIHP
- ISRAM
- G-WADI
- UWMP
- GRAPHIC
- WHYMAP

Hydrological Research

Water Resources Management

Education & Capacity Building

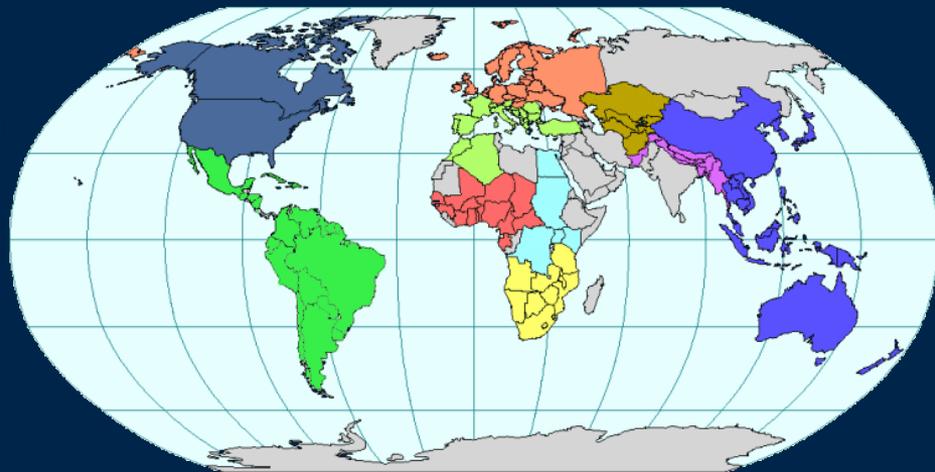
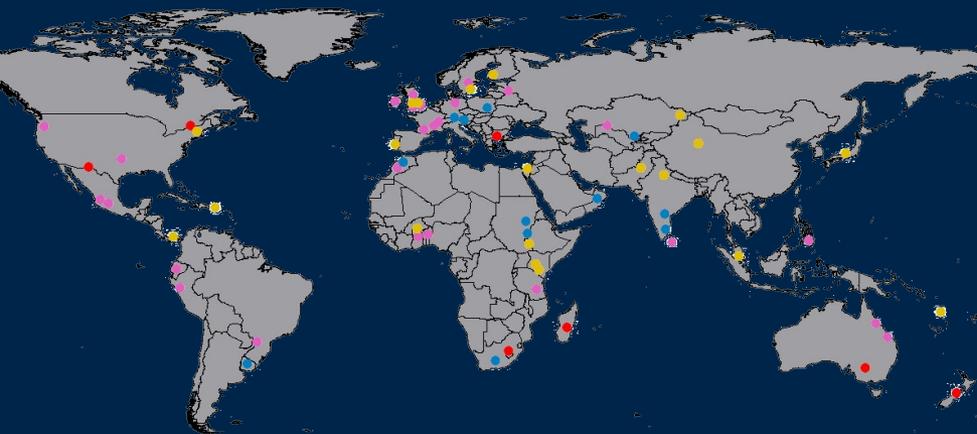




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FRIEND and HELP Global Networks



Established			Emerging	
■ N Europe	■ Asian Pacific	■ Nile	■ Central Asia	■ N America
■ AMHY	■ HKH	■ AMIGO		
■ Southern Africa	■ AOC			

HELP Network of Basins – Promoting Integrated Water Resources Management through Stakeholder Driven Best Practice Examples

FRIEND – A global network of regions to share data, monitoring and modeling techniques for scientific understanding of the water cycle

North America:

- Lake Champlain (USA-Canada)
- Lake Ontario (USA-Canada)
- Mystic (USA)
- Upper Washita (USA)
- Willamette (USA)
- Upper San Pedro (USA-Mexico)
- Luquillo Mountains (Puerto Rico)

Central and South America:

- Lerma-Chapala (Mexico)
- Cupatitzio (Mexico)
- Chaguana (Ecuador)
- Panama canal (Panama)
- Jequetepeque (Peru)
- Tacuarembó (Uruguay)
- Sao Francisco Verdadeiro (Brazil)

Europe:

- Karjaanjoki (Finland)
- Eman (Sweden)
- Nestos/Mestas (Greece-Bulgaria)
- Dragonja (Slovenia)
- Upper Danube (5 countries)
- Pilica (Poland)
- Pays de Savoie/Lac Lemán (France)
- Hérault (France)

- Rhône (France)
- Liguria-Veneto (Italy)
- Saale (Germany)
- Motala (Sweden)
- Oona (Ireland)
- Eden (UK)
- Frome-Piddle (UK)
- Welland (UK)

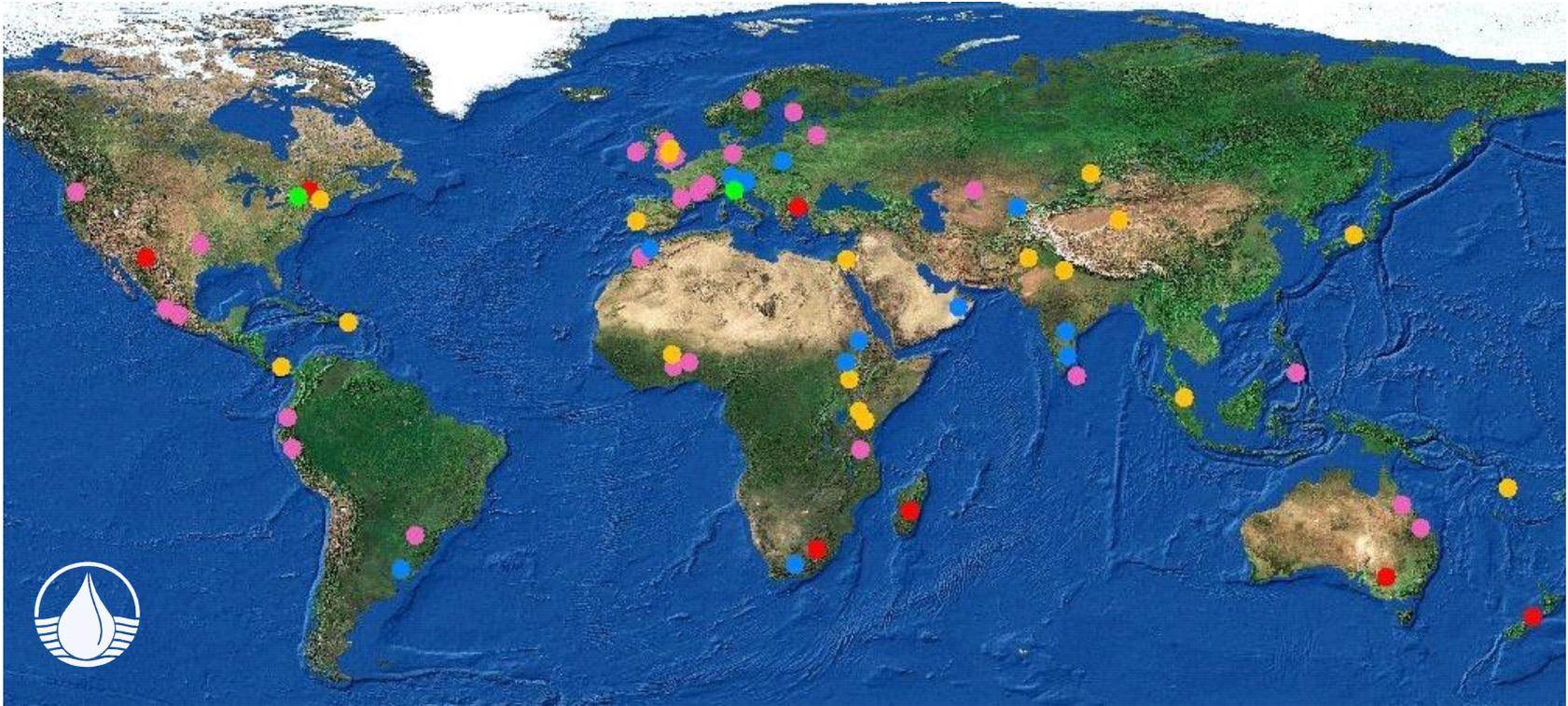
- Pang-Lambourn (UK)
- Tern (UK)
- Severn (UK)
- Thames (UK)
- Guadiana (Portugal)

Middle East:

- Khalil/Besor (Israel-Palestine)
- Barka (Oman)

HELP Basins Classification

- Demonstration
- Operational
- Evolving
- Proposed
- Associated HELP Activities



Africa:

- Bouregreg (Morocco)
- Drâa (Morocco)
- White Volta (Ghana)
- Upper Ouémé (Benin)
- Atbara (Ethiopia-Eritrea-Sudan)
- Ewaso Ng'Iro (Kenya)
- Lake Navaisha (Kenya)

- Nakambé (Burkina Faso)
- Gash (Sudan Ethiopia)
- Blue Nile (Sudan-Ethiopia)
- Mandaratsy (Madagascar)
- Olifants (South Africa)
- Thukela (South Africa)
- Greater Ruaha (Tanzania)

Asia:

- Lake Peipsi/Chudskoe (Estonia-Russia)
- Indus (Pakistan)
- Aral sea (central Asia)
- Irtys (Kazakhstan-China-Russia)
- Chirchick (Uzbekistan)
- Tarim (China)
- Gagas (India)

- Kaluvelly (India)
- Brahmani-Baitarani (India)
- Langat (Malaysia)
- Uda Walawe (Sri Lanka)
- Davao (Philippines)
- Yasu (Japan)

Australasia :

- Murrumbidgee (Australia)
- Fitzroy (Australia)
- Burdekin (Australia)
- Motueka (New Zealand)
- Talise (Vanuatu)



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Water Related centers



The **UNESCO-IHE** Institute for Water Education is the largest water education facility in the world and the only institution in UN system authorized to confer accredited Master and PhD degrees. The Institute is instrumental in strengthening the efforts of other universities and research centres to increase the knowledge and skills of professionals working in the water sector.

Water-related institutes and centres under the auspices of UNESCO work on relevant thematic and geographic priorities in their areas of expertise. Since Member States have recognized the potential of these centres, the network has been rapidly expanding

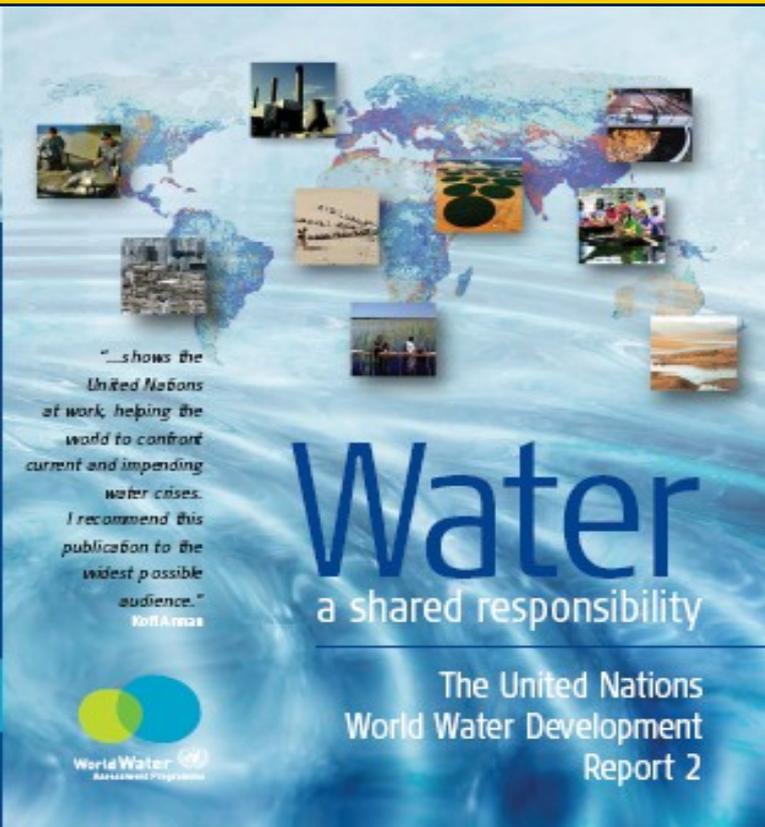




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The State of The World's Freshwater Resources



World Water Assessment Programme (WWAP)- Hosted and led by UNESCO

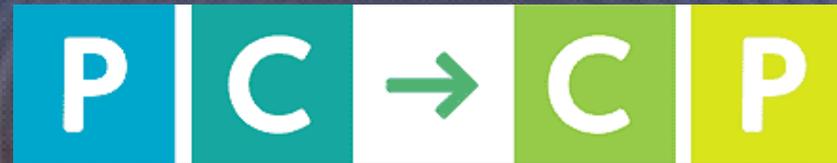




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From Potential Conflict to Co-operation Potential



Water for Peace

a contribution to

World Water Assessment Programme





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ISARM Portal: www.isarm.net



Welcome to



Initiative



Programme



Regional Activities



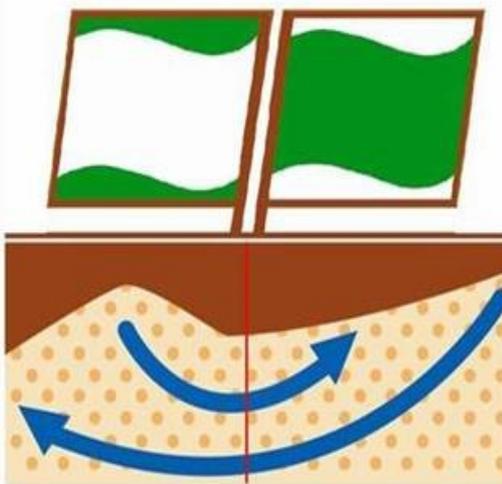
People



Documents



Collaborative Environment



what is a transboundary aquifer?

how widespread are transboundary aquifers?

ISARM

International Shared Aquifer Resource Management

read the ISARM news

ISARM contact

a global initiative for identification, assessment and sound management of transboundary aquifers



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ISARM

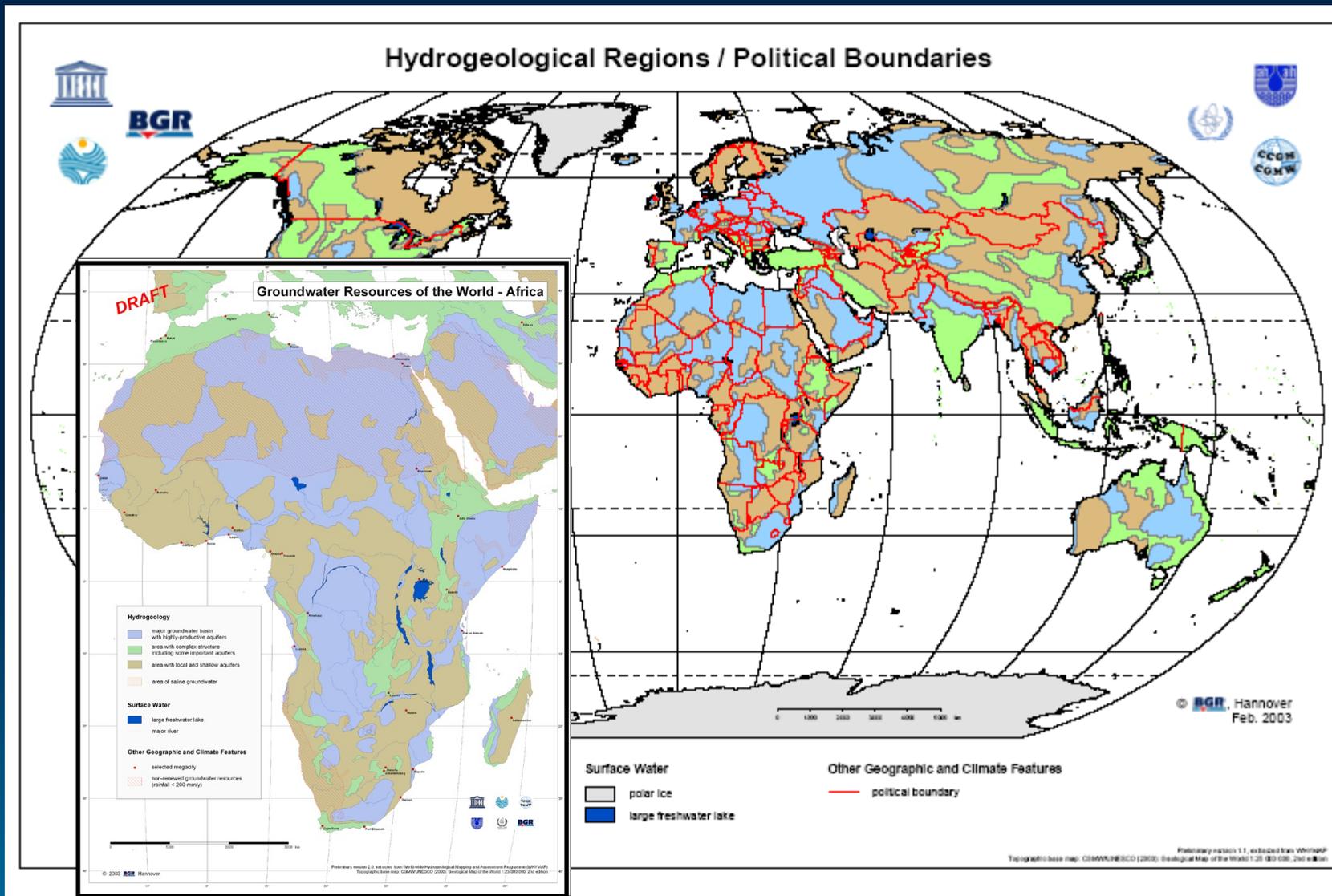
ISARM - Internationally Shared (Transboundary) Aquifer Resources Management: Multidisciplinary aspects

- **Legal**
 - eg Treaties, interstate agreements
- **Scientific**
 - Hydrology, hydrogeology, conceptual modelling
- **Socio-economic**
 - Water security, accesibility, efficiency, poverty reduction
- **Institutional Capacity Building**
 - Awareness raising, counterpart agencies
- **Environmental**
 - Sustainability, biodiversity, risks, vulnerability



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Groundwater Map of the World

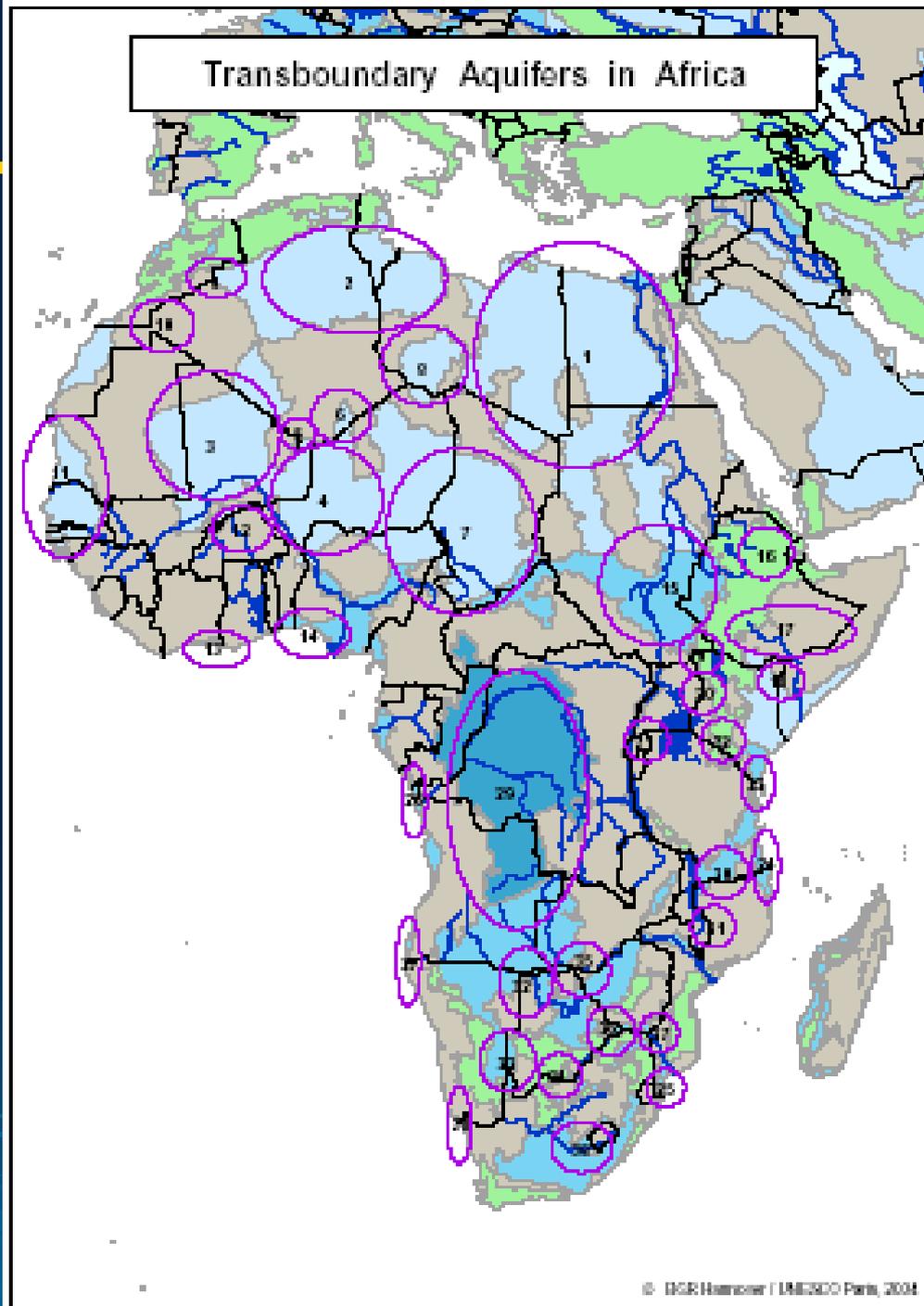




UNESCO ISARM AFRICA

**39 transboundary aquifers
inventoried**

Many countries and large urban
conglomerations in Africa
depend to a major extent or
entirely on groundwater and the
large shared aquifer resources
represent often the only source
for drought security and life
sustenance of large
populations in semi-arid areas



UNESCO ISARM in the BALKANS

47 transboundary aquifers inventoried



UNESCO Chair/International Network of Water-Environment Centres for the Balkans (INWEB), Aristotle University of Thessaloniki, Thessaloniki, Greece.



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IHP

Concluding Message

UNESCO is leading trans-disciplinary global effort to manage shared waters by bringing together:

- **Water Science**
- **Water Law**
- **Socio-economics**
- **Institutional Capacity Building**
- **Environmental Management**
- **Water Diplomacy**

Because

Shared Waters = Shared Opportunities