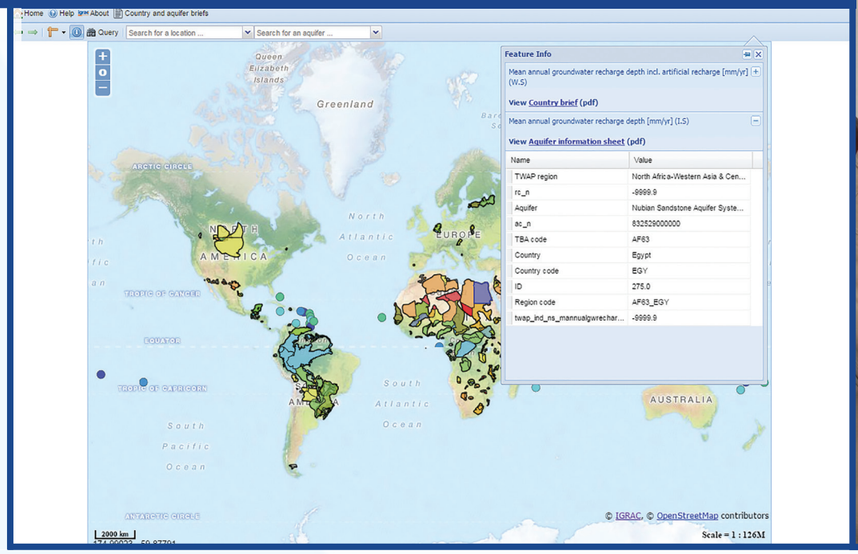
ABOUT THE TRANSBOUNDARY WATERS ASSESSMENT PROGRAMME

BASELINE ASSESSMENT

Recognising the value of transboundary water systems and the fact that many of them continue to be degraded and managed in fragmented ways, the Global Environment Facility Transboundary Waters Assessment Programme was developed (TWAP). TWAP aims to provide a baseline assessment to identify and evaluate changes in these water systems caused by human activities and natural processes, and the consequences such have on dependent human populations.

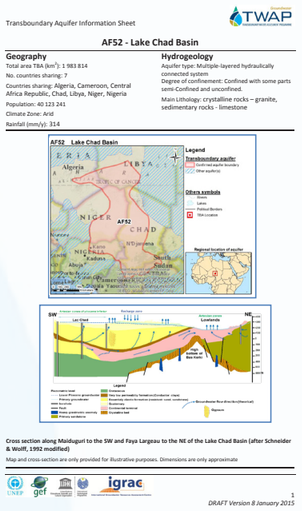


TWAP GROUNDWATER

The Groundwater Component of TWAP has collected data on 199 transboundary aquifers (TBAs) and the groundwater systems of 43 Small Island Developing States (SIDS). Data were collected using networks of national experts and literature surveys. Based on these data, indicators have been calculated describing the groundwater systems in terms of their hydrogeological, socio-economical, environmental and governance dimensions. In addition, projections for 2030 and 2050 have also been made using a global model.

TRANSBOUNDARY AQUIFERS

The final results will be presented by the end of 2015, but as this stage the project has already managed to establish the first structured global databases on TBAs. Using questionnaires and workshops a huge amount of data has been un-locked and important data gaps are revealed. For 74 TBAs the project has resulted in improved delineations of the aquifers' boundaries. The participative approach of TWAP Groundwater has capacitated national experts and has assisted in creating international networks at a technical level.


Transboundary Aquifer Information Sheet

TWAP

AF52 - Lake Chad Basin

Geography

Total area TBA (km²): 1 983 814
No. countries sharing: 7
Countries sharing: Algeria, Cameroon, Central Africa Republic, Chad, Libya, Niger, Nigeria
Population: 40 123 241
Climate Zone: Arid
Rainfall (mm/yr): 314

Hydrogeology

Aquifer type: Multiple-layered hydraulically connected system
Degree of confinement: Confined with some parts semi-Confined and unconfined.
Main Lithology: crystalline rocks – granite, sedimentary rocks - limestone

AF52 Lake Chad Basin

Legend
Transboundary aquifer
Other aquifer(s)
Others symbols
Lakes
Political Borders
Rivers
Regional location of aquifer

Cross section along Maiduguri to the SW and Faya Largeau to the NE of the Lake Chad Basin (after Schneider & Wolff, 1992 modified)

Map and cross-section are only provided for illustrative purposes. Dimensions are only approximate

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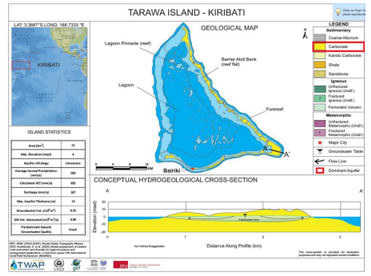
SIDS

Groundwater systems of Small Island Developing States are not of a transboundary nature. SIDS were included in the Transboundary Waters Assessment Programme Groundwater assessment because of their high vulnerability and specific nature and in order to bring to the global attention the major issues, concerns and hotspots of the groundwater systems of these Small Island Developing States.

In total representative islands of 43 SIDS were included in the assessment using a similar methodology as for the transboundary assessment, but including an additional indicator describing salt water intrusion.


TARAWA ISLAND - KIRIBATI

GEOLOGICAL MAP

KIRIBATI

Lagoon Pinnacle (reef)
Barrier Atoll Bank (reef flat)
Lagoon
Forereef
Bairiki

ISLAND STATISTICS

CONCEPTUAL HYDROGEOLOGICAL CROSS-SECTION

Elevation (masl)
Distance Along Profile (km)

LEGEND
Sedimentary
Coarse Alluvium
Carbonate
Karstic Carbonate
Shale
Sandstone
Igneous
Unfolded Igneous (Undif.)
Fractured Igneous
Permeable Volcanic
Metamorphic
Unfolded Metamorphic (Undif.)
Fractured Metamorphic (Undif.)
Major City
Groundwater Table
Flow Line
Dominant Aquifer

TWAP

TWAP RESULTS

The project is envisioned to assist the GEF and other international donors in setting priorities for supporting the conservation of transboundary water systems. The main results of TWAP are the indicator based assessments allowing global comparisons of transboundary water systems. The main results from each of the 5 components will be presented in a common data portal and for more in-depth information each component has developed individual data portals.

THE FIVE COMPONENTS OF TWAP

GROUNDWATER | **LAKES & RESERVOIRS** | **RIVER BASINS** | **LARGE MARINE ECOSYSTEMS** | **OPEN OCEAN**

Transboundary water systems extend across or beyond national boundaries. They include more than 600 aquifers, 600 lakes and reservoirs and 276 rivers. In addition to these freshwater systems, transboundary waters also include the open ocean and 55 large marine ecosystems collectively covering almost 70% of the Earth's surface.

In TWAP all five water systems components are being assessed through individual sub-projects.

Each strategic partner involved in TWAP has engaged a broad network of experts that evaluates the transboundary water systems thematically or geographically.

TWAP is financed by the Global Environment Facility and is implemented by the United Nations Environment Programme.

The groundwater component is executed by the United Nations Educational, Scientific and Cultural Organization International Hydrology Program (UNESCO-IHP) together with a great number of partners, amongst which is IGRAC.

INCEPTION MEETING

APRIL 2013
PERUGIA, ITALY

A two days Inception meeting was organized to launch the 2-year GEF financed Transboundary Water Assessment Programme (TWAP) Component on Transboundary Aquifers and SIDS Groundwater Systems.

More than 50 participants attended this meeting, representing project partners and international and regional organisations associated with the project.

REGIONAL WORKSHOP AMERICAS

DECEMBER 2013
MONTEVIDEO, URUGUAY

The first regional meeting with national experts for the Groundwater component of the Transboundary Waters Assessment Programme (TWAP) was organised in Montevideo from 9-11 December 2013.

The TWAP Groundwater component is a follow-up of the UNESCO Internationally Shared Aquifer Resources Management (ISARM) Initiative. Therefore the meeting in Montevideo was largely attended by those experts who had been closely collaborating in the framework of ISARM Americas in the past.

REGIONAL WORKSHOP WESTERN/CENTRAL AFRICA

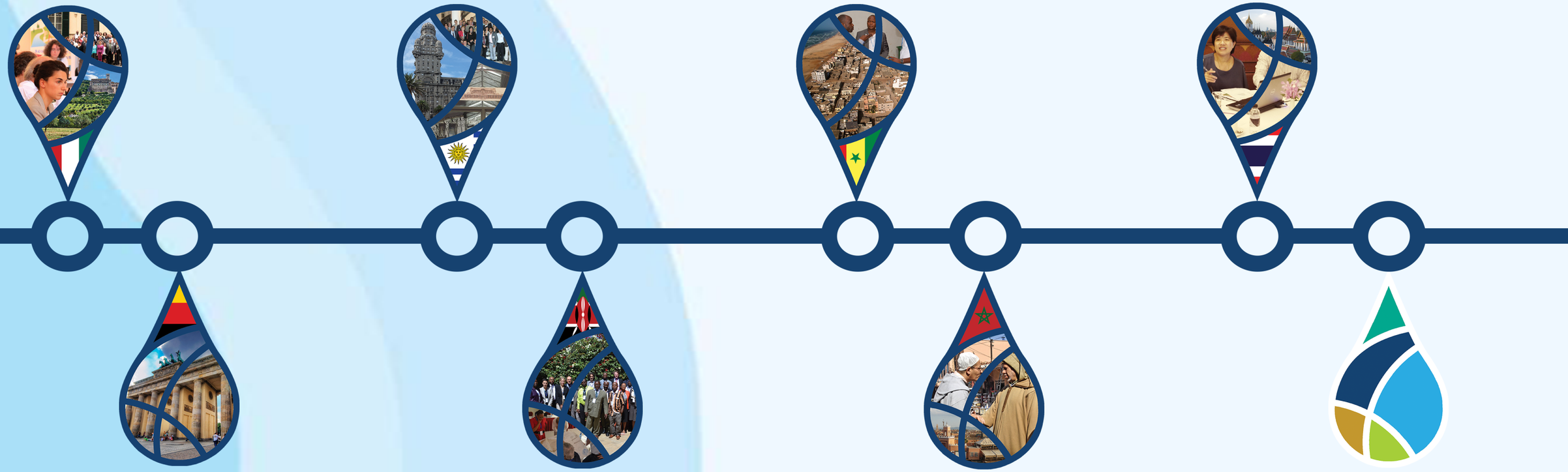
JULY 2014
DAKAR, SENEGAL

From 22-24 July, a Regional Workshop for Western and Central Africa was organised in Dakar, Senegal. This was the fourth regional meeting for the Groundwater component of TWAP. The workshop was attended by national experts from 18 countries in West/Central Africa, together with representatives from Regional Economic Commissions ECCAS and ECOWAS, UNESCO and of IGRAC. The workshop provided an excellent platform to exchange ideas and information on the transboundary groundwater resources in the region, and for a considerable number of TBAs the delineation was improved.

REGIONAL WORKSHOP CENTRAL/SOUTH/EAST ASIA

OCTOBER 2014
BANGKOK, THAILAND

The fifth and last Regional Workshop of the TWAP Groundwater project was held from 7-9 October in Bangkok, Thailand. The main objectives of this workshop for Central, South, East and South-East Asia were to introduce TWAP groundwater component as a follow up of UNESCO's IHP ISARM initiative, to share currently available knowledge, based on previous regional initiatives (ISARM-Asia) and to ensure that all parties were familiar with the methodological approach of the TWAP Groundwater project, including data collection protocols, input variables and parameters, indicators and main project outputs.



EXPERT GROUP MEETING

AUGUST 2013
BERLIN, GERMANY

On 21 August 2013, UNESCO-IHP and IGRAC together with BGR organised the first expert meeting for the region Europe.

The Berlin meeting gathered members from various institutes to decide on the workplan for the regions Europe. The approach for Europe was slightly different from other regions as the programme wanted to dedicate only limited resources on assessing aquifers in non GEF illegible countries. It was decided to assess only a limited amount of aquifers in Europe.

REGIONAL WORKSHOP SOUTHERN/EASTERN AFRICA

MARCH 2014
NAIROBI, KENYA

From 4 to 6 March 2014 the second regional workshop was held in Nairobi – Kenya. The workshop was attended by experts from 19 countries and representatives from the regional economic commissions SADC and IGAD.

The project's methodology was discussed and national experts worked together with neighbouring countries to discuss the data for the aquifers they share.

IAH INTERNATIONAL CONGRESS

SEPTEMBER 2014
MARRAKECH, MOROCCO

In September 2014, the International Association of Hydrogeologists (IAH) organized the IAH International Congress in Marrakech, Morocco. During this congress, IGRAC presented the 'First Global Baseline Assessment of Transboundary Aquifers: Food for Cooperation'. During this session, an overview of the objectives and methodology of the groundwater component of TWAP was given. IGRAC also presented examples of the information potential for the final database which is being build up in this project. The data of TWAP groundwater will be made available to the public through the GGIS 2.0.

FINAL PRODUCTS

END 2013

The complete set of TWAP results will become available by the end of 2015. The assessment results for each component will be described in concise summaries for policy makers, accompanied by in depth technical reports. All data and results will be made available through map-based and interactive data portals, which can be accessed via www.geftwap.org. It is envisaged that the assessments will be repeated in the future and that the methodologies will become mainstream assessment methodologies. UNESCO-IHP and IGRAC are committed to continue playing an important role in this for the groundwater component.