

The IWAS-Initiative



Background

Currently, around one billion people have no access to safe drinking water and around three billion people live without adequate sanitation. This situation not only has a serious impact on the health of these people, but also on the economy of the concerned countries and regions. At the world summit in Johannesburg in 2002, the United Nations agreed upon the Millennium Development Goals (MDG). One of these goals is to reduce the number of people without access to safe drinking water and without sanitation by half by the year 2015. The IWAS project unites various partners who work together in order to contribute to the achievement of this goal.

About IWAS

The International Water Research Alliance Saxony - IWAS was initiated by the Helmholtz Centre for Environmental Research – UFZ, the Dresden University of Technology and the Stadtentwässerung Dresden (member of German Water Partnership – GWP) and is funded by the German Ministry of Science and Education (BMBF). In order to face the challenge set by the UN in the MDGs around 60 scientists from the three institutions together with other partners from science, industry and political decision-makers, are developing specific solutions to particular water related problems in five regions worldwide under the concept of Integrated Water Resources Management (IWRM).

IWAS Research

IWAS analyses specific research questions within five world regions based on some of the most pressing water problems worldwide in the fields of water supply and sanitation, water and agriculture, ecosystem services and extreme events and processes. The focus in IWAS lies on the overriding goal of an Integrated Water Resources Management and therefore it uses an integrated research approach.

IWAS Regions

As the reasons for the occurring water problems are specific to the conditions in the respective regions, each of the investigated areas has its own profile:

Eastern Europe: The countries of the former Soviet Union which border on the European Union are under pressure to adapt to new environmental standards (e.g. the EU water framework directive). IWAS investigates the development of surface water quality in response to the influences of agricultural, industrial and urban activities. As an example for regions in similar conditions, questions of urban water management, the development of adequate technologies, aspects of Ecosystem Services and socio-economic analyses are investigated along the river Bug, which borders the Ukraine and Poland.

Central Asia: Process studies on ecosystem functions are conducted in the pilot region Central Asia (Mongolia), an area which shows near-natural, but extreme climatic conditions. There is a population growth indicative for a developing country, demographic shifts and the resulting changes in industrial and agricultural activity. The development of adequate solutions for these complex problems is possible only through the combination of field studies on natural processes, socio-economic analyses, adaptation of technologies and an integrated modelling (climate, hydrology, soil-plant-atmosphere etc.).

Latin America: As an example for the sprawling cities of Latin America, IWAS investigates the development of Brazil's capital Brasília under the influence of climate, demographic and land use changes and seeks for solutions towards an Integrated Water Resources Management. Intensive agricultural activity is threatening the quality of surface water bodies, which are currently the only supply of water to the city. Therefore, IWAS

is working on alternatives for a sustainable use of water resources in the region.

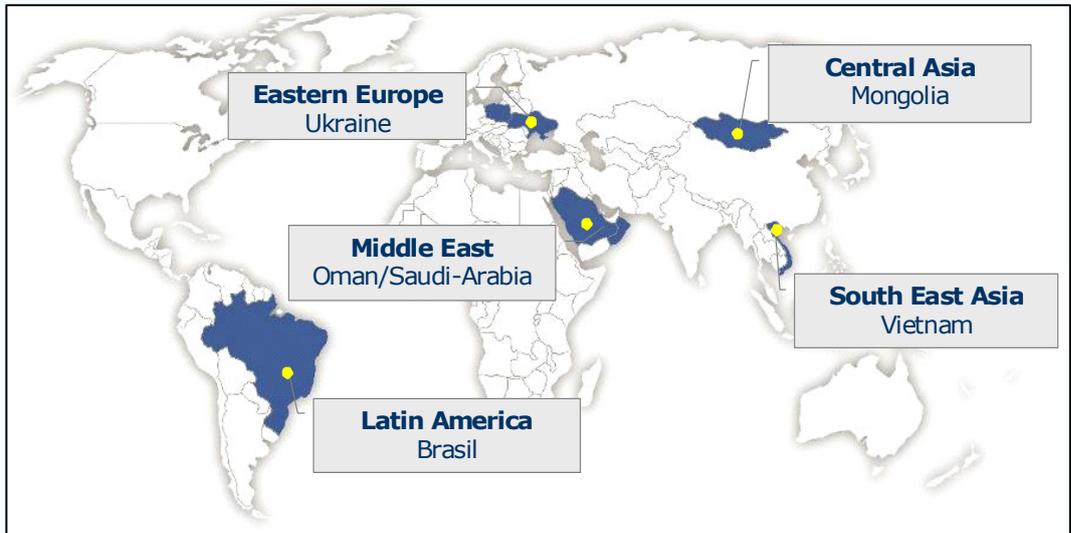
South East Asia:

The growing megacity of Hanoi (Vietnam) is facing serious water problems due to population and economic growth of the whole area. Steps towards an improved waste water treatment

situation taken in IWAS are: adequate waste water treatment, artificial groundwater recharge and sludge recycling with the according technology development and the teaching of local scientists and operators.

Middle East: New solutions for a sustainable management of the scarce water resources in (semi-) arid regions are explored within IWAS in the Middle East (Oman and Saudi Arabia). The groundwater resources of this area are investigated in a system approach: from the large-scale, highly precise determination of groundwater recharge, the storage and use of ephemeral streams (artificial groundwater recharge) through to the optimization of water use in agriculture.

Cross-cutting themes within IWAS aim at a better integration of the acquired results and competences, an integrated scenario analysis and at the implementation of the respective results. For an improved system understanding, all regional subprojects contribute with their data and model components to the development of the **IWAS-ToolBox**. The IWAS-ToolBox is a modelling platform that allows for an integrated system investigation and the development of future scenarios and herewith can support decisions on the implementation of measures. The implementation of developed results and technologies plays a prominent role in IWAS and is lived up to through the close cooperation with partners from the industry.



As IWAS thrives to sustainably implement the developed system solutions, adaptive strategies, measures and methods in the respective regions, the development of concepts for knowledge transfer and **capacity development** are of central concern within IWAS research.

Within the five model regions IWAS combines scientific research with economic development by integrating competent partners from the regional industry. The respective socio-political structures are considered and through the cooperation with local stakeholders and the development of competences in the model regions, IWAS ensures that the regional solutions and management concepts also function in the long run. Herewith IWAS provides specific solutions to an Integrated Water Resources Management and contributes to the achievement of the Millennium Development Goals.

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