FOUNDATIONS OF THE FUTURE ARE LAID TODAY

Unlike conventional centralized grid-based infrastructure, sustainable system solutions based on more differentiated concepts are inherently more flexible and adaptable to changing conditions.
The spectrum of technologies considered in "Water 2050" for the urban water context covers water and wastewater treatment technology (including desalination and the recovery of raw materials and the exploitation of energy), monitoring and control technology, monitoring and rehabilitation of existing infrastructures, alternative sewerage systems (based on pressure or vacuum, micro-tunnelling), flood protection, discharge of storm water and rain water harvesting, and the creation of suitable administration and operating structures. Additionally, technology for groundwater monitoring and aquifer rehabilitation is considered.

YOU ARE INVITED

The project "Water 2050" explicitly invites interested parties from governments, municipal administrations, water management agencies and NGOs of countries outside Germany to bring in their perspectives regarding their problems and possible solutions. The exchange of experiences and problems from different perspectives is likely to contribute to the preparation and specification of promising solutions. At the same time, cooperation partners receive early insights into the interim results of the project; they can consider them already in their early planning and come in contact with potential future cooperation partners.

You are invited to become a member of the network. We are looking forward to your perspectives and contributions.

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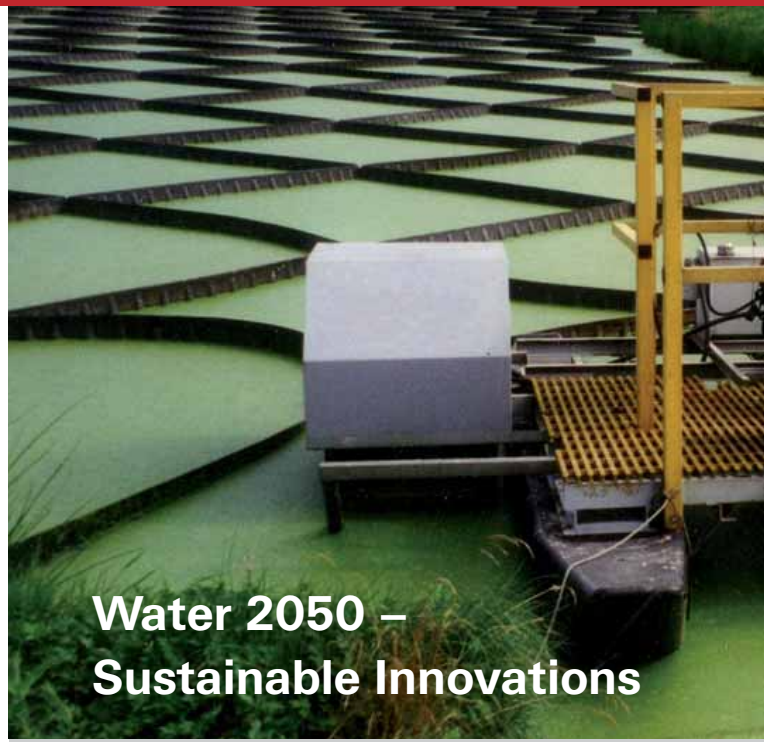
For further information about the project, please visit
http://www.isoe.de/english/projects/watervis.htm



Water 2050 – Sustainable Innovations

WATER 2050

THE USE OF WATER AND ITS CHALLENGES

The availability of clean water is a basic need of human beings. However, almost two billion people are actually without access to clean water and even more suffer from a lack of hygienic sewage disposal. The ongoing trend towards population growth and urbanization especially in developing countries is even expected to worsen this situation. Therefore, in the United Nations' Human Development Goals, the community of states has issued the ambitious aim to halve the share of the world population without access to clean water and hygienic sewage disposal until 2015. In addition, especially in the industrialized countries, there is an extensive need to rehabilitate and modernize existing water infrastructures.

Beyond its immediate services to people, the main proportion of water is used in agriculture for the production of food. This creates great demands for the sustainability of water use – with regard to the exhaustibility of the resources, the efficiency of use and, in some cases, the coincidence between irrigation and soil degradation. Moreover, most problems related to the scarcity of water and the erosion of soil are foreseen to be further aggravated by longer draughts and more frequent storm events characterizing the ongoing climate change.

INTELLIGENT SYSTEM SOLUTIONS

Many technical approaches solving one or the other of the afore-mentioned problems exist. However, comprehensive solution of water-related sustainability problems can only be achieved if their basic causes are investigated and stand-alone solutions dealing only with certain, specific aspects of water use are replaced by integrated system solutions. In arid regions, for instance, it is of increasing importance to establish recycling and reuse of water. In order not to waste economic and ecological resources, this requires the application of treatment technologies that are sufficient for producing just the quality of water required at a specific point of use. The treatment of wastewater polluted with certain specific pollutants, for instance, is often more effective and less costly if done before mixing with other types of wastewater in a central sewerage system. Some recovered contaminants may even be recycled as fertilizer in agriculture or as operating agents in industry.

A great potential for better sustainability also exists between different sectors. So, potable water, waste water, waste and energy technologies, which are usually developed independently and optimized for application in a specific service sector, can give rise to significant surpluses if technical components are integrated appropriately with measures taken in other service sectors. Examples are the reuse of heat from wastewater or sewage treatment or the generation of electricity from biogas. In any case, these solutions have to be adjusted to user needs, social situations as well as economic and ecologic long-term conditions.

Water infrastructures represent a long-lasting investment. In view of the increasing urbanization, demographic change, climate change, increase in resource prices and global competition it is important to establish structures in the water sector that are adaptable to these emerging challenges. Key issues are the increase of flexibility and the reduction of vulnerabilities. Through systemic application of technological and organizational innovations it is possible to substantially improve water use efficiency and sustainable water resources management.

It is essential that these system solutions are not only planned on a technical level. Additionally, the organizational context, the social and political environment, especially regulation and governance, are important basic conditions for the realization and functioning of system solutions that are to be considered.

WATER 2050 – ITS OBJECTIVES AND APPROACH

The project "Water 2050" is funded by the German Federal Ministry of Education and Research. It started in winter 2006 and runs until October 2009.

The objective of "Water 2050" is the analysis of needs and options for implementing integrated and sustainable system solutions in water resources management by the year 2050. "Water 2050" analyzes existing water-related technologies and conducts a foresight to identify technological options and technical gaps that need to be closed for their implementation. It analyzes export and demand potentials as well as the demand for water technology and sustainable system solutions on the world market.

Specifically, "Water 2050" takes the following steps:

- Technology foresight to watch out relevant future developments with special focus on sustainable systems solutions;
- Development of long-term scenarios on sustainable system solutions for various generic water resources management problems;
- Backcasting approach to identify measures and milestones for inducing the necessary technology development and enabling the implementation of sustainable water systems in the long run (paying special attention to the local governance structures);
- Building a network of actors to further the development of system solutions and the export and implementation of water-related technologies in foreign, including developing, countries.