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Water research for people, nature and the economy

Water is essential for all life. Be it in agriculture, industry or the home: this resource plays a crucial role in people's everyday lives and in the economy. Conscious handling of water is therefore a central pillar of sustainable development – and with the effects of climate change, population growth and a lack of drinking water this is one of the major challenges of the 21st century.

Funding water research and technologies has made a vital contribution towards German water management and research institutions being recognised and accredited for their development of future-oriented solutions that are helping secure and protect water resources worldwide.

Research for sustainable developments and high-tech strategy: the framework of the programme

The Federal Ministry of Education and Research (BMBF) is using its "Research for sustainable development" framework programme (FONA) and the government's high-tech strategy to tackle domestic and global challenges, particularly in relation to water. The focus is on research for sustainable water management. The topics covered within the principle of "sustainable water management" cover a broad range, including innovative technological approaches to protecting drinking water, supply and disposal, methods for river basin and flood management, cost-effective management concepts and measures to ensure an international transfer of knowledge. Water research has – like the entire area of environmental technology – undergone a paradigm shift over the last few years. While in the past the focus was on reacting to problems and developing "end-of-pipe" technologies, the emphasis is now on research and technology looking at forward-looking measures and the development of integrated problem-solving strategies.

On the way to a European research area

Multilateral initiatives are being supported at European level in order to intensify the funding of research in the European area. The aim is to create an internationally competitive European research and technology area. For example, the BMBF and its project co-ordinators are involved in the EU-funded ERA-NET (European Research Area-Networks) with regard to integrated river basin management and flood protection and precautions. This network makes it possible to co-ordinate research funding and develop harmonised concepts for future collaboration in the areas of research and technology.

Exceeding the boundaries of specialist disciplines

Water research involves many different fields of knowledge and combines a diverse range of approaches and objectives. Solutions in this broad field of research can thus only be found when the boundaries of specialist disciplines and sectors are exceeded and through intensified dialogue. Water engineers must work together with ecologists, economists and social scientists and must also consider the needs presented by politics, administration and consumers.

Networking to increase water management expertise

One of the central aims of the BMBF “Research for sustainable development” framework programme is to intensify dialogue between all the key players from economics, science, politics and society and to embark on new journeys together within water management. In doing so, Germany intends to retain and expand its position as a leading technology provider within the fields of climate protection and adapting to climate change, sustainable resource management and innovative environmental and energy technologies. The environment sector is also a major source of employment. By providing training in science and international project management, the research funding provided to universities, research institutes, major research facilities and industry makes a huge contribution to maintaining and intensifying water management expertise and thus securing jobs.

Transfer of technology and knowledge

One specific concern of the BMBF is the transfer of knowledge from research and development to company practice, with particular emphasis being placed on tapping into new markets. It is precisely through collaboration with emerging and developing countries, that successful water management can produce both short-term solutions for acute challenges and also consider long-term developments to deal with a lack of specialists and extreme climatic conditions. The principle of Integrated Water Resource Management (IWRM) within the sustainability research programme focuses on developing efficient measures for safeguarding and managing water resources in numerous partner countries, particularly within Asia, the Middle East and Africa. Measures within environment education and on-site capacity building play a key role in supporting the future sustainability of projects and processes.

International implementation

Many forms of technology have already proven their worth here in Germany. Now is the time to transfer them to other regions and to adapt them to the local conditions. Decentralised supply and disposal concepts and procedures for obtaining and treating water could also provide more and more people in emerging and developing countries with access to clean drinking water. Accessing water resources requires planning tools that assist in controlling consumption in accordance with need. As extreme weather events are on the increase, a forward-looking flood management policy is of growing global importance. The respective local conditions must also be taken into account, for example the composition of the untreated water, the infrastructure and cultural differences.

An overview

This brochure presents ongoing and completed examples of BMBF water research funding. Covering the main principles of “ecology, “technology” and “economy and education”, the aim is to provide an overview of ideas and results produced and implemented by German universities and institutes together with commerce & industry and international partners.