

## Partners

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## Objectives

- Establishing scientific partnerships between Europe and Asia to contribute to international sustainable development
- Achieving a better understanding of ecosystem dynamics in the rivers and streams of the HKH region
- Developing and applying an ecological assessment system using benthic macroinvertebrates
- Developing tools for ecological water management and river basin planning

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# Development of an ASSESSment System to Evaluate the Ecological Status of Rivers in the Hindu Kush-Himalayan Region



## The need for river quality assessment

Water is vital for life – and clean water is a primary requirement for good health. But water is a finite and vulnerable resource; in many places there is not enough water – and what is available is of poor quality. The requirement for water is growing as a result of population growth, urbanisation, intensification of agricultural practices, and development of industry. At the same time sources of pollution are increasing, for example from untreated urban household waste, industrial effluent, and increased use of chemicals in agriculture. Maintaining a sufficient supply of clean water for the growing population is one of the major challenges for the future, especially in the densely populated Asian region. In order to develop appropriate approaches to water management, however, it is first necessary to have clear information about the present situation and trends.

At present, there is little information available about water quality in the major and minor rivers of Asia, which are the major source of water supply for hundreds of millions of people upstream and downstream. There are strong indications that river water pollution is affecting biodiversity in both rivers and floodplains, and that deterioration of water quality is affecting the supply for human consumption. But more detailed and spatially differentiated information is needed.

## Bioindicators

Bioindicators are organisms (plants and animals) that can be used to detect environmental status and changes. Benthic macroinvertebrates are known to be useful bioindicators of river water quality. Benthic macroinvertebrates are animals without a backbone like worms, snails, mussels, crayfish, insects, and others that live on the river bottom. They respond to overall quality deterioration from multiple and varied sources and thus provide an overall picture of water quality status. These creatures are widespread and common in streams and rivers worldwide; they are easily caught and can be seen with the naked eye. ASSESS-HKH is one of the first research activities aimed at developing a methodology for using these aquatic bioindicator organisms for river quality assessment in the HKH region.

## The ASSESS-HKH project

The primary aim of ASSESS-HKH is to develop a simple and standardised methodology for using benthic macroinvertebrates as bioindicators to evaluate the quality of water in the rivers of the greater Himalayan region. It is based on a methodology developed for European rivers. The technique will enable large-scale mapping of water quality, support intervention planning, and aid the development of concepts for sustainable use of rivers and their water. The project will run from April 2005 to April 2008.

Both river quality assessment and management tools will be developed under the project. The main outcome will be an HKH Eco-data Management Tool (ECODAT) that will assist scientists to quickly evaluate the ecological status of rivers. It will consist of a catalogue of taxa of macroinvertebrates and corresponding ecological information, together with a programme for assessing ecological status by entering information in simple macroinvertebrate taxa lists. The tool will be developed and tested in partnership among scientists and water quality managers from Europe and Asia.

