The Uniqueness of Hydrology

The world water resources and the water environment are under threat as never before. In almost every river basin, man's activities have disrupted the natural hydrological and ecological regimes. Consequently, water supplies are no longer secure, the risks of hydrological extremes (floods and droughts) appear to be increasing and aquatic ecosystems are being destroyed. The great challenge for the scientific hydrological community is to identify appropriate responses to these threats. In other words, to provide the necessary knowledge/understanding of the operation of hydrological processes at all scales, so that, in co-operation with other scientists, solutions can be found to optimise the use of the world's water resources.

The complexity of water problems requires specialists from many different disciplines such as biology, atmospheric science, forestry, biology, geology, geography, landscape architecture, engineering, ecology, soil sciences, social science, to work together to find solutions. Good and bad examples of such solutions can be found in practice. It appears that the bad examples often suffer from the fact that the interdisciplinarity of the problem was underestimated by the planners. Water resources need to be examined and utilized in a holistic manner. Hence hydrology is a very interdisciplinary science. This must be reflected both in conducting hydrological process research and in the development of strategies for integrated water resources management. Thus, the establishment of links between disciplines is the prerequisite for providing sustainable solutions. To achieve this requires certain skills, which must be incorporated in science education as "a way of working in a cooperative manner".

In summary, the uniqueness of hydrology is the integration of expertise from many disciplines to resolve problems in the hydrological cycle.

- In a nutshell: Hydrologists are the integrators!