

## **Experience from the Environmental Monitoring of an International Rivers – Some Comparison between Mekong and Danube Rivers**

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Environmental monitoring constitutes an integral component of resource management. As such, it should be seen as a process starting from the definition of policy-relevant information needs, which are then used to design a monitoring strategy and develop a network. The next step in the process is data collection and processing, followed by data analysis and reporting. Since information needs evolve with time and socio-economic developments periodic adjustments of monitoring programmes is essential for their optimization. Research on environmental monitoring shows that its usefulness as a tool for conflict resolution has been most widely utilized in a national context.

The particular focus on international water quality monitoring during the past two decades exemplified by the monitoring networks on the Rhine (Europe), la Plata (South America), the Mekong (Southeast Asia) is in line with the above-mentioned trends, although the level of complexity and accuracy of the different monitoring networks varies. For example, the monitoring along the Mekong river is usually on the national scale and without the data exchange between the riparian states focusing mostly on rice crop monitoring, flood monitoring, or land and resources monitoring. However, the important points to be taken into consideration for the design of the monitoring network on international rivers and the sampling method are the location of the monitoring stations and the sampling frequency and intensity. In view of the regulatory function of monitoring, stations should be located at or near the border crossing and at major point sources and tributaries. In order for the samples to be representative, the temporal and spatial variability of water quality in the river system and the particular objectives of the monitoring programme should be taken into account.

E.g. given the changing nature of the water pollutants (from biodegradable organic wastes to highly sophisticated synthetic organic compounds), the expansion of knowledge about their importance, and capacity to measure them in view of technical, and scientific developments, and human and financial capital availability, monitoring programmes need to be periodically reviewed, adjusted and optimized. However, international river monitoring seems to be particularly vulnerable to the high costs of sampling and analysis; and inadequate comparability of national data with transboundary river basins. The study conducted on Danube river on the areas affected by Gabčíkovo-Nagymaros project including the unique inland delta, illustrates the benefits and complexities associated with the establishment of such programmes. It uses a multidisciplinary methodology combining approaches derived from natural resources management, geography, international relations, political science and international law.