

INTERNATIONAL ASSOCIATION FOR DANUBE RESEARCH (IAD) – 45 YEARS OF LIMNOLOGICAL ENGAGEMENT AND EMBARKING ON NEW ENTERPRISES

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Abstract: The IAD is the oldest NGO in the Danube River Basin (founded in 1956). The status, history and future projects of IAD are summarized and referenced. It is emphasized that IAD is stretching between basic and applied limnology, and dedicated to the concept of integrated water management and the catchment approach.

Keywords: NGO (non-governmental organization), basic research, applied research, Danube River Protection.

INTERNATIONALE ARBEITSGEMEINSCHAFT DONAUFORSCHUNG (IAD) – 45 JAHRE LIMNOLOGISCHER EINSATZ UND AUFBRUCH ZU NEUEN UFERN (ERWEITERTE ZUSAMMENFASSUNG)

Zusammenfassung: Die IAD ist die älteste NGO im Donaauraum (gegründet 1956). Status, Geschichte und zukünftige Projekte der IAD werden kurz beschrieben und zitiert. Es wird hervorgehoben, dass die IAD den Spagat zwischen Grundlagenforschung und angewandter Limnologie macht und dem integralen Gewässerschutz im ganzen Einzugsgebiet verpflichtet ist.

Schlüsselworte: NGO (Nichtregierungsorganisationen), Grundlagenforschung, angewandte Forschung, Gewässerschutz Donau.

1. IAD: Past – Present – Future

The International Association for Danube Research (IAD), founded in 1956 and affiliated with the International Association of Theoretical and Applied Limnology (SIL), is the oldest NGO in the Danube River Basin. IAD's recent history, position papers and outlooks into the future have been published, e.g., Wachs (1996) and Bloesch (1999a,b; 2001a; 2002a). In the "cold-war" period, IAD operated as a permeable filter in the "iron curtain" separating east from west. Uniting scientists and promoting limnology and qualitative water protection in the Danube countries were the major tasks of IAD. The political paradigm of the early 1990s is now followed by an organizational and missionary paradigm within this traditional association. IAD presently has 11 member countries, and 13 expert groups, covering all basic disciplines of limnology. Apart from the Danube monograph of Liepolt (1966/67) and the special book series "Limnologie der Donau" and "Ergebnisse der Donau-Forschung" (see references in Bloesch, 1999b), numerous scientific papers have been published in IAD Conference reports (e.g., IAD, 2000) and in the Journal "Archiv für Hydrobiologie, Supplement Large Rivers". Further information can be found on the internet homepage www.iad.gs and in the public leaflet "Danube News" (2002). Since 1998, IAD has been an observer in the then established International Commission for the Protection of the Danube River (ICPDR), and as such, is cooperating with their expert groups.

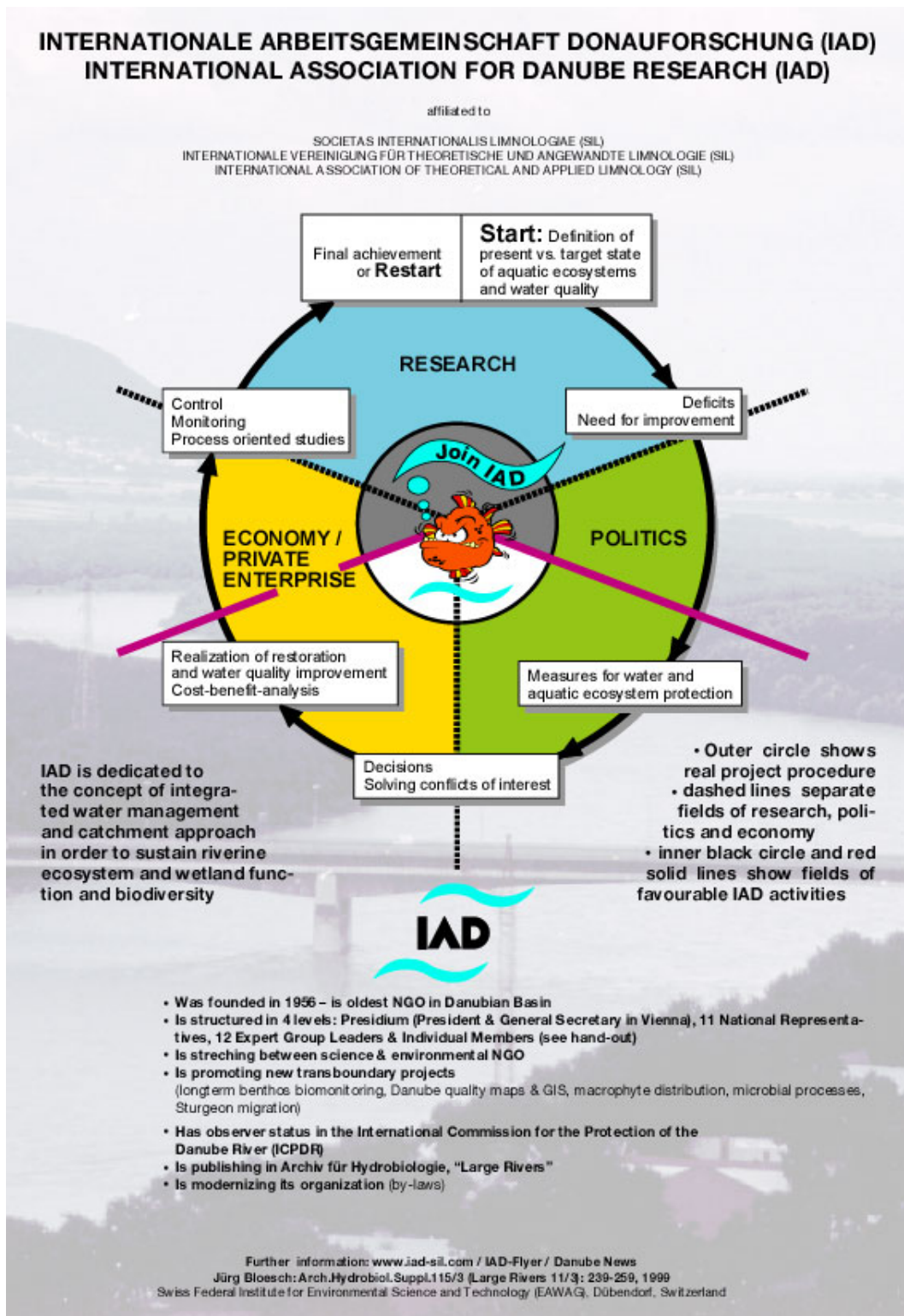


Figure 1. The concept of integrative water management and strategy for integral water protection. In the course of a project from planning to realization, science, policy and economy overlap. IAD, above all, covers basic and applied science (shown in inner circle). Modified from Bloesch (1999b).

2. IAD-Strategy: to support environmental protection policy in the Danube River Basin

IAD is dedicated to the concept of integrated water protection and management, and the catchment approach as illustrated in Figure 1. In reality, this means stretching between basic and applied research, and therefore, considering the overlap of aquatic ecology with politics and economy. By all means, IAD is keen to provide the sound scientific foundation that is necessary to implement practical measures for water protection. Since water management issues on the international political scale are now being developed in the context of the EU water framework directive by ICPDR, a governmental organization, the potential contribution of IAD may be essential.

Traditionally, qualitative water protection and, hence, biomonitoring in the Danube River and its tributaries have been the major focus of IAD. This is demonstrated by the water quality map of the Danube River and its tributaries (Heuss, 1999; Schmid, 2000). IAD provided and still provides many taxonomists of aquatic animals and plants, which is an essential tool for the assessment of water quality and biodiversity. Recently, the scientific focus has clearly broadened towards quantitative and morphological water protection. Especially, the role of Danubian floodplains and wetlands is elucidated in respect to biodiversity and flood protection (Schneider, 2002). Morphological river constructions generally cause irreversible damage to aquatic and riparian ecosystems despite considerable efforts for restoration; hence it is of crucial importance not to over-develop riparian areas in the Danube River Basin (Bloesch, 1999b; 2001b; 2002b). The quantitative side of the Danube River research focuses mainly on the load (= concentration x discharge) of nutrients and contaminants into the Black Sea, thus stressing the importance of the link between limnology and hydrology (Suciu et al., 2002).

3. IAD-Projects: Providing scientific foundation of aquatic ecosystem functions

Presently, IAD is promoting the following topics with first priority (Bloesch, 2001a):

- (a) Investigation of the endangered sturgeon migration, habitats and natural reproduction (Suciu et al., 2001; Reinartz, 2002; Reinartz et al., 2002). The vision is to open the iron gate and other impoundments to migrating sturgeons to ensure natural reproduction in the Middle and Upper Danube, and to better regulate the sturgeon fishery and caviar production in view of sustainable use. The program "Sturgeon 2020" can be compared with the similar project "Salmon 2000" on the River Rhine (Bloesch & Sieber, 2002).
- (b) Macrophyte inventory and mapping along the Danube River (Janauer et al., 2002). The changes in aquatic vegetation can be monitored with such plant inventories, and the effects of human impacts can be predicted by modelling using GIS related information.
- (c) Biomonitoring, including the updating of the Danube Water Quality Map (Heuss, 1999; Schmid, 2000), based on benthic communities and the saprobic system. By repeated mapping, based on new investigations, an efficient success control of implementing technical waste water treatment plants can be maintained, for the benefit of politicians and the public. In addition, by separating point sources from non-point sources, the impact of agriculture on the Danube River, through excessive fertilization with nutrients, may be assessed.
- (d) Ecological microbiology to develop a genetic method for sublethal effects on river biota (Farnleitner et al., 2002). While hot spot point sources and toxic spills, such as Baia Mare in 2000 (Bloesch, 2001c, and references therein), cause vast killing of aquatic life, the low concentration range of pollutants remains to be investigated (Burkhardt-Holm & Bloesch, 2000). Ecological microbiology provides a large potential, as bacteria show a distinct and rapid reaction to micro-pollution.
- (e) Riparian landscape and catchment inventory by applying new technologies (remote sensing), and linking to the riverine corridor (Orthaber et al., 2001). In-stream investigations on the small scale are combined with landscape features on the large scale, thus applying

the catchment approach. As such, powerful instruments for water managers and decision makers can be provided.

New methodological and conceptual approaches are particularly reflected by (a), (b), (d) and (e), while biomonitoring represents the traditional although changing approach of assessing water quality. It should be stressed that aquatic ecosystem conservation and restoration must be balanced with human use and impacts, and that the understanding of ecosystem function is the basis for new water management strategies.

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