

International co-operation to improve the environmental status of the Danube River Basin – Black Sea

1. Policy Objective & Theme

- SUSTAINABLE USE OF RESOURCES: Preserving coastal environment (its functioning and integrity) to share space

2. Key Approaches

- Integration
- Participation
- Technical

3. Experiences that can be exchanged

Management of transboundary rivers can be very effective when the responsible national governments co-operate through agreed instruments and measures.

4. Overview of the case

The Danube Delta clearly shows that international co-operation backed by legislation and an agreed work programme, which includes public participation, can reverse the significant impacts from anthropogenic pressures suffered during the last 50 years.

5. Context and Objectives

a) Context

The Danube River Basin is the second largest river basin of Europe covering 801,463 km² and territories of 18 states including the EU-Member States of Austria, Bulgaria, Czech Republic, Germany, Hungary, Italy, Poland, Romania, Slovak Republic & Slovenia. It drains into the Black Sea and the coastal waters of the Danube extend along the full length of the Romanian coastline. The water quality of the river adversely affects the other Black Sea states including Bulgaria. The Black Sea itself has little or no tide and consequently slow renewal processes and sensitive ecosystems prevail.

Five key problems have been identified as major underlying causes of environmental degradation in the Black Sea viz. eutrophication from over-use of nitrogen and phosphate fertilisers; discharge of hazardous substances including oil; microbiological contamination; oxygen depletion & heterotrophic growth; and increased sedimentation, competition for water & changes in river flow patterns. As a result of these activities, many important floodplain areas are slowly drying out and formerly rich fisheries e.g. sturgeon have collapsed. Migratory species are impacted by dams and impoundments that disrupt the longitudinal connectivity of rivers and streams. Furthermore, intermittent hydropower generation (hydro-peaking) causes special downstream effects on the aquatic fauna. Water is released by pulses several times per day, causing tremendous water level changes - "artificial floods" damage the aquatic fauna by sweeping them away during pulses and drying them out in periods of retention.

b) Objectives

The overall objective is to achieve and maintain the sustainable development and use of water resources and groundwater and includes the conservation and restoration of ecosystems in the Danube River Basin. The main management challenge for

the Danube River and Black Sea is to address the marine transboundary problems by land-locked countries affecting the river system which are not direct beneficiaries of a healthy Black Sea.

6. Implementation of the ICZM Approach (i.e. management, tools, resources)

a) Management

The International Commission for the Protection of the Danube River (ICPDR) is the operational body and is responsible for international co-ordination. It works to ensure the sustainable and equitable use of waters and freshwater resources in the Danube River Basin. The work of the ICPDR is based on the Danube River Protection Convention, the major legal instrument for cooperation and transboundary water management in the Danube River Basin.

b) ICZM tools

The “Convention on the Protection and Sustainable Use of the Danube River” (The Danube River Protection Convention - DRPC) became, with its entry into force in 1998, the overall legal instrument for co-operation and trans-boundary water management in the Danube River Basin. It has developed and established the Danube River Basin Management Plan (DRBMP), the Danube River Basin Strategy for Public Participation in River Basin Management Planning 2003-2009 and an Operational Plan which provides an overall framework and a description of activities, including a timetable and work-plan. The Contracting Parties co-operate on fundamental water management issues and take all appropriate legal, administrative and technical measures, to maintain and improve the quality of the Danube River and its environment. Several instruments have been adopted to improve the situation of the Black Sea. The chief ones are: the Bucharest Convention for the Protection of the Black Sea (1992); the Odessa declaration on the protection of the Black Sea (1993) and the Strategic Action Plan for the rehabilitation and protection of the Black Sea (1996). Most notably, a Memorandum of Understanding between the International Commission for the Protection of the Black Sea and the ICPDR in common strategic goals was signed in 1991. This forms the basis for an inter-linked management regime between the river Danube and the Black Sea.

Legislation in some countries prohibits over-fishing of species from the Danube and Black Sea during their spawning period (e.g. in Bulgaria from 20 April – 5 June) and for some species under a particular size. There are also fishing quotas set for some species. The active involvement of the public is a core principle in sustainable water management under the Convention. To date, 10 organisations have become observers to the ICPDR. including NGOs, organisations representing private industry, and inter-governmental organisations.

7. Cost and resources

The Secretariat of the ICPDR is located in Vienna, Austria with a team of eight staff members

8. Effectiveness (i.e. were the foreseen goals/objectives of the work reached?)

Measures taken have started to mitigate the worst environmental effects and the decrease of the nutrient loads, especially for phosphorus, into the Danube River during the past decade is beginning to decrease eutrophication in the Danube Delta. Furthermore, the destruction of floodplains and wetlands has stopped due to protection status under different national or international legislation. The restoration of original river beds has started due to implementation of various projects. Nonetheless, further mitigation measures, to restore wetlands and river-banks is needed to help restore biodiversity.

The situation in the North-Western Black Sea shallow waters has improved considerably since the early '90s due to reduced nutrient inputs: eutrophication has reduced, areas of high chlorophyll have extended, water transparency has considerably increased, the near bottom oxygen regime has improved and phytoplankton, benthic macro-flora and some invertebrate species (number and diversity) have re-appeared.

9. Success and Fail factors

Two key pre-conditions were required to make it work. One, Danube countries had the political will to cooperate with each other and apply river basin management. Two, international donor assistance was valuable in helping the countries lay the early foundations, as was the importance of ensuring donor coordination to maintain strategic focus and benefits, and a win-win situation, for all 'Danube managers'.

The decrease of the nutrient loads is the result of emission control measures of nutrient removal from waste water in Germany, Austria and the Czech Republic and reduced phosphate discharges from detergents. However, the consequence of the economic crisis in central and eastern European countries has led to a closure of large animal farms (agricultural point sources), a dramatic decrease in the application of mineral fertilizers and closure of nutrient discharging industries (e.g. fertilizer industry). The Convention, which grants observers the right to participate at ICPDR decision-making meetings and Expert Group meetings, has proven to be successful in ensuring that different aspects and approaches could influence and shape the current water management in the Danube River Basin.

Not all Danube countries place sufficient emphasis on co-operation between environmental and agricultural authorities or industrial enterprises, farmers and local communities as a substitute for the traditional systems based on a fragmented decision-making process. For most of the countries, a national inter-ministerial mechanism for pollution control and nutrient reduction does not represent a priority. However, there is a substantial need in the Danube River Basin countries for the creation of nutrient reduction and pollution control mechanisms. The lack of data on hazardous substances is a problem caused mostly by the deficiency of adequate analytical instrumentation in the downstream countries and the lack of legal instruments for obligatory measurements. Biological impact assessments are not fully comparable between all countries and the collection of data from the marine environment is a difficult and expensive exercise. As a result, the analysis of the impacts in the coastal waters and the marine environment of the Black Sea is necessarily based on data with a limited temporal and spatial resolution.

At present, there are no protected areas along the Danube for the conservation of (economically) important species. There is also a need to elaborate an action plan for the sustainable use of the sturgeon, and for restoration of fish paths on the Danube and its tributaries. However, it is important to recognise that eutrophication is not the sole cause of the environmental problems of the Black Sea; elevated concentrations of heavy metals occur especially in the delta lakes; and severe hydro-morphological alterations and intensive agriculture and forestry have led to the loss and deterioration of large areas of land formerly unused and interconnected within the delta. As a consequence species and habitat diversity has declined. Further mitigation measures, to restore wetlands and river-banks is needed to help restore biodiversity. Although the Danube and Black Sea Conventions have recognised the importance of tackling nutrient discharges as a key issue, little has been done to join forces apart from mutual representation on the decision-making bodies. A Danube Black Sea Task Force has, however, been set up with the objective of implementing the EU Water Framework Directive as future water policy in the EU will have to be based on this legislation.

10. Unforeseen outcomes

None so far.

11. Prepared by

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12. Verified by


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13. Sources


- 15 Years Of Managing The Danube River Basin 1991- 2006 ICPDR / International Commission for the Protection of the Danube River
- Convention on Cooperation for the Protection and Sustainable use of the Danube River (Danube River Protection Convention) (1998) ICPDR / International Commission for the Protection of the Danube River

- Draft Danube River Basin District Management Plan (2009) ICPDR / International Commission for the Protection of the Danube River
- ICPDR Operational Plan to ensure Public Participation in implementing the EU Water Framework Directive on the basin-wide (“roof”) level (2004) ICPDR / International Commission for the Protection of the Danube River
- www.icpdr.org



15 Years Managing DRB_June07 (3.65 MB) 



Convention (132.06 KB) 



Draft_DRBM_Plan (2.38 MB) 



ICPDR Operational Plan - cons ver 2004 2005 for web[1] (276 KB) 