



INTERNATIONAL WATERS RESULTS NOTES

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Danube River Basin Environmental Management, Pollution Reduction, and Transboundary Cooperation

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Project Status: Completed



Key results:

1. A Transboundary Diagnostic Analysis (TDA) and a Strategic Action Plan were completed and implemented.
2. All Danube countries developed policies and legal instruments for sustainable water management and nutrient reduction.
3. Nutrient loads to the Danube River (specifically nitrogen and phosphorous) were reduced, and water quality was improved. The Black Sea benefitted from reduced Danube River nutrient levels, as well as the linkage and cooperation of these projects with the UNDP/GEF IW Black Sea projects

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PROJECT OBJECTIVE

This Results Note covers a series of GEF IW Danube River Basin projects dating from 1992 to 2007.

The Danube River flows 2,857 kilometers from the Black Forest to the Black Sea, draining 817,000 square kilometers of south central and south eastern Europe. Throughout its length, the Danube provides a vital resource for drainage, transport, power generation, fishing, recreation and tourism, as well as an ecosystem of irreplaceable environmental value. Heavy use and dense human populations in the basin have contributed to degradation of the river, as well as that of the Black Sea, into which it is the largest river to flow.

Recognizing the increasing degradation of water quality, in 1985 the (at the time) eight riparians of the Danube signed the "Declaration of the Danube Countries to Cooperate on Questions Concerning the Water Management of the Danube," otherwise known as the Bucharest Declaration. The Bucharest Declaration reinforced the principle that the environmental quality of the river depends on the environment of the basin as a whole, and committed the countries to an integrated approach in water management, beginning with the establishment of a basin-wide unified monitoring network. Basin-wide coordination was strengthened at meetings in Sofia in September 1991, where countries and interested international institutions drew up an initiative to support and reinforce national actions for the restoration and protection of the river: the Environmental Programme for the Danube River Basin (EPDRB). The participants agreed that each riparian would:

- adopt the same monitoring systems of assessing environmental impact;
- address the issue of liability for cross-border pollution;
- define rules for the protection of wetland habitats,
- define guidelines for development to conserve areas of ecological importance or aesthetic value.

UNDP/GEF IW supported this effort beginning in 1992 with the project "*Danube River Basin Environmental Management*." The long-term objective of the project was the sustainable use and development of natural resources in the Danube River Basin (DRB), with the immediate objectives of:

- Developing local, national and regional capacity for long-term management of the DRB.
- Monitoring, collection and assessment of data on pollution sources and impacts
- Preparation of a series of pre-feasibility studies for high priority environmental investments for local and international funding
- Preparation of a strategic action plan for improved environmental management of the DRB

The next UNDP/GEF IW project was titled "*Developing the Danube River Basin Pollution Reduction Programme*," the overall long-term objective of which was to stimulate sustainable, institutional and financial arrangements for effective environmental management of the DRB. An immediate goal was to prepare for funding pollution prevention and reduction activities required to both restore the DRB and protect the Black Sea environment. This goal was comprised of four objectives:

- Complete the knowledge base for priority pollution loads and priority environmental issues in the Danube River basin
- Review policy for protection (especially nature protection) of the Danube basin and Black Sea
- Increase public awareness and participation;
- Develop financing for the pollution reduction programme under the Danube Strategic Action Plan

Eleven countries benefited directly from project activities: Bosnia-Herzegovina, Bulgaria, Croatia, The Czech Republic, Hungary, Moldova, Romania, Slovenia, Ukraine, and the Federal Yugoslav Republic. Two others (Austria and Germany) collaborated closely.

The International Commission for the Protection of the Danube River (ICPDR) was the project's regional partner. ICPDR is an international commission established through the Danube River Protection Convention (DRPC), providing a regional approach to the development of national policies and legislation and the definition of priority actions for nutrient reduction and pollution control, with particular attention to achieving sustainable transboundary ecological effects within the DRB and the Black Sea area.

The full title of the final UNDP/GEF IW project was the *Danube Regional Project: Strengthening the Implementation Capacities for Nutrient Reduction and Transboundary Cooperation in the Danube River Basin*. The project was known as the *Danube Regional Project (DRP)*, and was implemented in two phases.

The overall objective of the DRP was to reduce nutrient emissions into the Danube River and its tributaries in order to improve water quality in the Danube and in the Black Sea. The DRP was designed to complement the activities of ICPDR. A notable achievement of the DRP was its capacity to adapt to changing political and economic realities, specifically regarding the eastward expansion of the EU and the political changes in the former Yugoslavia.

The specific objective of *Phase 1* of the Project was to prepare and initiate basin-wide capacity-building activities with particular attention to creation of inter-ministerial committees, concept development for implementation of policies, legal and economic instruments, mechanisms for monitoring and evaluation and development of programmes for awareness raising and NGO strengthening.

The specific objective of *Phase 2* was to set up and strengthen institutional and legal instruments and institutions at the national and regional level to assure nutrient reduction and sustainable management of water bodies and ecological resources, through the implementing of concepts, methodologies, projects and programmes developed in Phase 1, involving all stakeholders and building up adequate monitoring and information systems.

Explicit linkages for the DRP were made with the UNDP/GEF IW Black Sea Regional Project (BSERP) and the World Bank Investment Fund for Nutrient Reduction (NRF), in the frame of the GEF – World Bank Danube/Black Sea Partnership Program. The DRP and BSERP were similar in structure and content – as they focused on regional TDA/SAP development and capacity building. The NRF was a \$75 million investment fund for projects focused on reducing nutrient loading.

RESULTS: PROCESS

The *Danube River Basin Environmental Management* project ran from 1992 to 1996 and achieved the following results:

- A Transboundary Analysis was carried out through the updating of National Reviews to obtain a complete knowledge base for priority pollution loads and environmental issues in the DRB.
- A Strategic Action Plan was developed and accepted, and implementation begun through the Strategic Action Plan Implementation Programme.
- A review of Monitoring, Laboratory and Information Management (MLIM) practices was conducted to assess needs (systems, equipment, training) to provide required environmental information.
- A Danube Accident and Emergency Warning System (AEWS) was established to adopt a common surveying and monitoring procedure throughout the region.
- A series of diagnostic missions was carried out in 17 tributary catchments of the DRB. An analysis was made of the heavily polluted tributaries with the aim of prioritising "hot-spots" for urgent action. Approximately 175 priority projects were identified: about 60% related to industrial facilities and 40% to municipal waste water treatment plants.
- Multiple environmental studies were facilitated: Surveys were conducted by Equipe Cousteau on Danube wetlands, pollution, navigation transportation and energy. An Integrated Regional Environmental Study and Inventory of Biological Resources was prepared. An Economic Evaluation of Danube flood plains was prepared by WWF. A study by WHO was used as a basis for the environmental health related issues in the SAP.

Developing the Danube River Basin Pollution Reduction Programme ran from 1996 to 1999 and achieved the following results:

- A revised Strategic Action Plan (SAP) was prepared including a review of policy for the protection of the DRB. The revised SAP formed the basis of an ICPDR document, “Common Platform for Development of National Policies and Actions for Pollution Reduction under the DRPC.”
- A Memorandum of Understanding between Danube and Black Sea Countries was drafted.
- The Danube Water Quality Model (DWQM) was upgraded to better estimate and evaluate the flow of pollution - in particular nitrogen and phosphorus - through the Danube into the Black Sea.
- Thematic Maps were prepared for river basin management in which 15 sub-basins as well as 51 Significant Impact Areas were defined.
- The project planned and realized a systematic and well-organized set of activities aimed at raising public awareness and eliciting participation when designing environmental projects.
- The project gave support to NGOs, in particular in developing the regional body, the Danube Environmental Forum (DEF). A Small Grant Programme was financed to reinforce NGO participation in pollution reduction measures and awareness raising projects.
- The development of the ICPDR Information System was supported.
- A feasibility study on possible new regional financing mechanisms resulted in a proposal for the creation of a Danube Environmental Financing Facility (DEFF).
- Development of the Pollution Reduction Programme and its financing proposals was completed by developing a portfolio of 421 projects evaluated at \$5.5 billion, ranked according to investment cost effectiveness. The projects covered 246 hot spots comprising 192 municipal, 113 industrial, 67 agricultural, and 29 wetland restoration projects, plus 20 projects classified as general measures.
- The results and products of the PRP were transferred to the ICPDR, which became the custodian of previous UNDP/GEF projects, and all information gathered during the project was made available at the ICPDR Information System.

The *Danube Regional Project* ran from 2001 to 2007 and achieved the following results:

- All ICPDR countries developed policies and legal instruments for sustainable water management and nutrient reduction. In particular, harmonisation with the European Union’s Water Framework Directive (WFD) became the driving force in the development of policies and legal instruments for improved water quality management. All of the Danube EU countries were establishing basin management plans and districts and agreed to issue a joint set of plans for the Danube. The non-EU countries indicated their interest to harmonise with the WFD requirements and most took initial legislative steps in this direction.
- Each country made progress in the areas of transboundary cooperation; improved water quality monitoring; emission control; emergency warning; accident prevention; and information management.
- 120 national small grant funded projects were launched, led by national environmental NGOs. There were also 12 regional small grant projects carried out, involving 35 NGOs working on transboundary problems.
- The Danube Environmental Forum was successfully re-activated and played useful roles as an ICPDR observer, a vehicle for public awareness raising, and an aide to NGOs across the region participating in the small grants programme.
- Public awareness of Danube environmental issues was raised through 100 articles in the regional and local media, more than 70 workshops bringing together more than 1,700 participants, and promotion of the annual Danube Day.
- Five pilot projects were managed, with manuals and training workshops developed for each; two study tours were held (US and Netherlands); two basin-wide workshops were carried out including 90 country representatives; and a final workshop was held.
- A set of 35 indicators for project monitoring and evaluation were developed and 14 indicators were tested and evaluated.
- A manual entitled *Technical guidance on the integration of the nutrient reduction in riverine wetland management* was produced.

RESULTS: STRESS REDUCTION

- Projected pollution reductions across the project countries totaled approximately 25,000 mt/year for nitrogen and 4,000 mt/year for phosphorous as of 2005.
- Net reduction in nitrogen loads from the Danube to the Black Sea was estimated to be 36 kt/year, between the 1988-1996 average (364 kt/year) before UNDP-GEF involvement, and the average over the 1999-2008 GEF period of 328 kt/year.
- Inorganic phosphorus loads from the Danube to the Black Sea dropped 5-6 kt/year against their mid-nineties highs of around 10-12 kt/year.
- With policy advisory support from the DRP as well as the UNDP/GEF IW Black Sea Ecosystem Restoration Project, and driven by various international commitments, most Danube countries have taken important steps to reform and implement their nutrient management policies and legislation (fertiliser use, manure management, etc.). Reduction in nutrient loads will continue over time as the very high level of accumulated fertiliser and manure nitrate in DRB groundwater gradually diminishes with improved management practices.

RESULTS: WATER RESOURCE AND ENVIRONMENTAL STATUS

- For nitrogen, phosphorus and chlorophyll-a (an indicator of productivity), 68%, 88% and 100% of Danube waters, respectively, were rated as Class I or II by the end of the projects in the Danube water quality index that is considered to be compliant with good water quality.

KEY LESSONS LEARNED

1) Critical to success is the relationship between project management and Commission Secretariat. These are not easy relationships to manage, since the Secretariat plays both a beneficiary role and a management role, while the Project Coordination Unit provides funding and technical support to the Secretariat, but also may pursue some outputs outside the scope of Secretariat responsibilities. If GEF project teams can get this relationship working well from the outset, as occurred with the DRP and ICPDR Secretariat, and can make a continuing effort throughout the project to maintain this relationship, such projects stand a real chance of achieving a high degree of success.

2) The project transformed an abstract concept of transboundary pollution into a neat package of recognizable problems. The identified polluting agents are clear and measurable causes of pollution. The project strengthened, as well, personal collaboration among the high-ranking officials of the various ministries. It is, therefore, possible to put a human face on an anonymous governmental decision.

3) By first undertaking a training needs assessment, the DRP learned that training activities needed to build institutional capacities (ICPDR, DEF etc.) as well as to build technical capacities (nutrient reduction, wetland rehabilitation, reduction of toxic substances etc.) to assure the increase of knowledge and the capacity to act for water management and pollution control. The training needs assessment also served as the basis for prioritizing training needs given limited resources (human and financial).

4) Increasing the public's knowledge is a relatively easy task compared to the difficult task of changing the attitudes of beneficiaries. A systematic evaluation of the message adoption rate should be included in environmental projects. This evaluation may help in selecting the best tools and media to transmit the message. Also, it is critical to focus on developing appropriate public participation mechanisms and strategies given specific levels of activity (regional, national, sub-basin, local.)

5) Expert Groups stand a strong chance of being successful when: (a) the countries fund their own contributions and participation; (b) the persons participating in the groups are indeed technical experts

rather than senior managers; (c) there is low turnover of experts, allowing greater continuity and improving trust and communications across the participants.

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