

## **Moldova: Analysis of transboundary management of the Dniester river basin (#425)**

### **Description**

Dniester river basin is a transboundary basin shared by Moldova and Ukraine. The river basin is the fifth biggest in the Black sea region with the largest total area of the river basin in Moldova. Dniester River serves as a drinking water supply sources for main towns located on its banks including Chisinau, the capital town of Moldova. An estimated 2.7 million people live in the Moldavian part of the Dniester basin. The state of ecosystems significantly deteriorated during the Soviet era by intensive use of agrochemicals, uncontrolled water abstractions for different purposes, waste water discharges among others. As there were no international mechanisms and tools for management of the river basin, practices that existed for the management of the Dniester basin are still not sufficient and strengthening of transboundary cooperation is crucially important. Moldova and Ukraine have both shown intentions for European integration as a main target of their policies. The environmental degradation of the Dniester River is made worse by the frozen Trans-Dniestrian conflict, which inter alia impacts negatively on the use of joint infrastructure for wastewater treatment. The problem takes on transboundary dimensions as polluted water flows into Moldova from Ukraine and thereafter back into Ukraine again and is discharged into the Black Sea south-west of the city of Odessa

### **Action taken**

After the collapse of the Soviet Union a number of joint efforts with Ukraine were undertaken and an agreement on transboundary cooperation was signed and ratified. A bilateral agreement between the governments of Moldova and Ukraine on the “Joint Use and Protection of the Cross-Border Waters” was signed in 1994. This cooperation framework is based on the contributions of network of local authorities, NGOS, academia and University communities, which ensured effective cooperation for implementing the IWRM principles in the basin. Following the cooperative framework, the EU funded a project, an initiatives called “Neighbourhood policy” for promotion of the Ukraine – Moldova cooperation. A number of partners were involved contributing to the best EU water management practices in the region which increased the Moldova aspirations for EU. In addition a number of educational and research projects funded by different national and international donors have been implemented providing valuable information to different levels of authorities on the state of environment in the region and also served as a basis for decision making process, development of joint planning strategies for the river basin.

### **Lessons learned**

- European integration aspirations of Moldova give a very good base for integration of the IWRM principles in the development of the planning documents and their further implementation in the Moldavian part of the Dniester basin.
- Past frameworks (institutional, legislative) together with past assumptions for cooperation need further development in order to implement provisions of the achieved agreements on basin management in Moldova. This will help to contribute to the cooperation with Ukraine in the field of water management.
- Technical and financial assistance from international and national institutions is a decisive issue to implement national and inter-governmental plans for management of the water resources in the basin.
- Civil society, research and educational organizations give a valuable material for decision making process and provide a good basis for cooperation.
- Institutional capacities of national institutions dealing with the water management have to be improved through regional and international cooperation, attraction of best practices in different sectors of economy to the region, expert and information exchanges.

## **Importance for the IWRM**

Cooperation among stakeholders in the Moldavian part of the Dniester river basin is a key issue. Actually a number of new players appear in the basin and their institutional role is not well defined. Raising awareness for the implementation of the planning IWRM documents is needed for development of new tools and mechanisms for attraction of the best water management practices to the region. It also shows that strengthening of inter institutional cooperation with involvement of local authorities, civil society, academia and educational institutions could contribute to the improvement of the social and economic situation.

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More information about the Dniester River Basin (with a support of UNECE): <http://dniester.org/>

## **MAIN TEXT**

### **Background and problems**

The Dniester River has been an internal basin of the USSR for decades. All problems were resolved mainly in Moscow and local institutions just supplied data to the decision makers. International norms and standards were not implemented in the basin. However, after the collapse of the Soviet Union a number of joint efforts with Ukraine were undertaken and an agreement on transboundary cooperation was signed and ratified. A working group was also set up which now meet regularly and in case of necessity in the ad-hoc regime and in order to implement joint actions and prevent negative impacts of the economic activities in the river basin. The political situation in Moldova is favourable for the implementation of the IWRM principles and is in line with the country's aspiration for EU. The total territory of Dniester River in Moldova is under EU funded part of a trilateral project on transboundary cooperation RO-UA-MD. In addition, Moldova is part of the Eastern Partnership project of EU, which also presumes implementation of joint activities aimed on stimulation of the implementation of the IWRM principles on the base of EU water related Directives.

### **Social and economic aspect**

Moldavian part of the Dniester River totally belongs to the Black sea basin and the economy in this region predominantly relies on agriculture. Agricultural land covers around 3/4 of the area (arable lands – 1400 thousand ha or around 53% of the area). Forests cover around 12.5% of the total land area or – 250 thousand ha. Urban localities are represented by towns located on the river bank – Tiraspol – 200,000 people, Tiigina – 60,000 people, Soroca – 20,000 people. The capital of the country – Chisinau is located in the Bic river basin (tributary of the Dniester) with total a population of around 750,000 people. The main occupation of the people living in urban areas includes transport, energy production, services, and food processing.

There are two Ramsar sites in the Moldavian part of the Dniester basin – Unguri-Holoshitsa (upper part of the river – 15,550 ha) and Lower Dniester area (around 60,000 ha). The Dubossrskaya Hydropower station located the middle of Dniester River was constructed in 1956. A Lake that was created as a result of the hydropower construction has a volume of around 350,000 m<sup>3</sup> which is used for recreation, fishing, energy and some other purposes. In recent years (5-7 years), tourism has become an important economic activity in the region. The Moldavian part of the Dniester River is composed of a mixture of populations i.e. Moldavians, Ukrainians and Russians. Commercial fishing is organized through fish ponds and there is also sport fishing as part of tourism. Data on fishing activities are limited, but one could estimate a total catch of around 4-5 tons/year.

Political changes which occurred in the beginning of 1990s resulted in a creation of the Transnistrian Republic which is not under the control of state authorities and statistical data on this part of the Dniester basin are very limited. The political division of the Dniester basin led to the change of the status of the river from national to international and relevant agreements are implemented in two riparian countries - Moldova and Ukraine.

## **Environmental situation**

On the basis of analysis of actual state of water management the issues in the Moldavian part of the Dniester basin are significant and among which include:

- Nutrient load resulting in eutrophication of main water bodies due waste water discharges (untreated or treated insufficiently) from municipalities and food processing industries. Total nitrogen load can be estimated on the level of 30 th. tonnes and phosphorus 1-2 th. Tonnes.
- Hydro morphological alteration. Colmatation of water bodies, interruption of the river continuity, especially on small tributaries, soil erosion (around 80% of arable lands are under different level of erosion intensity)
- Waste collection and waste management. Inappropriate practices lead to pollution of water ecosystems with organic and hazardous substances.
- Natural hazards. Flood and drought management issues are poor developed in the region and lack of documents developed in lines with relevant EU Directives in this domain is a great concern of central and local authorities

Actual economic growth in Moldova is around 5-6% in the last 2 years and this could cause increasing level of pollution with wastes and effluent discharges. Agricultural activities also lead to increased levels of agrochemical use. Actual level of mineral fertilizer application increased for nitrogen in a range of 1,5 times in comparison with the beginning of the year 2000 and is on the level of 20-25 kg/ha. On other hand the consumption pattern of people has also changed for the last 10-12 years and waste production in urban areas is around 500 kg/person/year and in rural areas around 200 kg/person/year.

## **Decisions and actions taken**

### **Re-establishing management capacities of national authorities**

After the collapse of the Soviet Union a national network for strengthening capacities of different levels of authorities dealing with management of natural resources started to be organized on the basis of cooperation with EU and other international institutions. The central authority for environmental resource management, including water resources is the Ministry of Environment with its subdivisions was one such example. Moldova has signed and ratified 16 international conventions with a component on watershed management. In addition Moldavian authorities in cooperation with EU prepared an agreement for close collaboration. Cooperation in the field of river basin management is a key element for implementation of this document in regard to water management and IWRM principles. More so, in a number of tributaries, River Councils were established in the Dniester basin in Moldova (river basins of Bic, Raut etc.). Meetings with potential stakeholders and donors were organized in order to develop relevant projects including information exchange on best management practices. In this context a regulation of Ukrainian-Moldovan cooperation in the management of the joint Dniester River basin website was signed in 2007 by representatives of relevant state institutions of both countries.

## **Joint commission on transboundary waters**

There is no joint commission in the Dniester river basin for cooperation between Moldova and Ukraine for management of water resources. Legal aspects of a joint commission were agreed and signed since 1994. In the frame of a bilateral “Agreement between the government of the Republic of Moldova and the government of Ukraine on the Joint Use and Protection of the Cross-Border Waters” and a meeting of Plenipotentiaries on cooperation in the Dniester river basin, management planning documents should be developed with the following objectives:

- Development of the Pollution Reduction Program with a special emphasis to nutrient reduction and hydromorphological alteration
- Habitat and river continuity restoration, especially on small tributaries
- Economic growth with emphasis on water transport, agriculture and environmental tourism
- Ecological farming (organic)
- Climate change and natural hazards

These objectives could become an issue for management of the river basin in the frame of activities of transboundary institutions. Dniester basin area in Moldova is also implementing other projects funded from international sources which aim at the reconstruction of road network with a total length of 90 km and irrigation – 40,000 ha until 2015 as an example. All these activities can lead to increased impacts on the state of the water resources and proper management is therefore required to reduce such impacts.

## **Engaging civil society**

The role of civil society in the planning, development and implementation of strategies is recognized as an important issue. Regional NGOs such as the Eco-Tiras, Biotica, and Miscarea Ecologista together with River Basin Councils formed in the basin tributaries cooperate with central, local and sectorial authorities in different projects. These activities cover wide range of fields i.e. raising public awareness, through organization of the Dniester Day, the Wetland Day, public actions on cleaning of the river beds and banks among others. Educational activities are organized in schools with the assistance of local authorities and national environmental Fund. In addition, research activities are also a part of civil society involvement in obtaining different sorts of data, which help in the development of the IWRM documents. A number of projects are implemented with the support from EU Commission (Eastern Partnership, trilateral cooperation RO-UA-MD, Black sea program) and also from the national funds aimed at the support of local initiatives (maintenance of water infrastructure, research and local WWTPs). In this context local authorities cooperate with businesses, schools, farmers associations and sectoral authorities.

## **Development of the Dnestr river basin management plan**

In spite of all the efforts by different levels of stakeholders to develop an integrated management plan for the Dniester basin much has not been realized. Only a number of documents and plans regulating different activities in the basin exist. In 2009-2010, a plan for the management of

natural resources in the capital Chisinau were developed with the support of the Global Water Partnership (GWP) and presented by GWP Moldova to the Chisinau municipal authorities. A project funded by GWP is being implemented with the set of the following objectives:

- Identification of needs of local authorities in the development of local water infrastructure in different parts of Moldova.
- Preparation of a planning document for management of the water resources according to the IWRM principles.
- Strengthening capacities of local authorities to develop water infrastructure.

In addition a number of activities are funded by different international agencies aimed to develop network for drinking water supply and sanitation. GWP funded activities will serve as an added value for such activities coupled with organizing water dialogues among different stakeholders, education of the masses and knowledge sharing with partners.

### **Institutional strengthening and knowledge sharing**

Environmental research institutions funded by the Moldovan government and international funded projects have developed a number of activities in the Moldavian part of the Dniester. For instance, the Society Biotica and Eco-Tiras. On a yearly basis they have led done assessment on the state of ecosystems in the Moldavian part of the Dniester basin and published the results. Dniester basin issues are a subject of discussion during annual civil society Forum meetings with the development of proposals and recommendations to the central environmental authorities.

Civil society representatives are members of the board of the Ministry of Environment and Environmental Fund. An Environmental Information Centre was established at the Ministry of Environment of Moldova to provide training and educational programs and materials to different target groups of population. A number of projects were implemented to strengthen the capacities of the HYDROMETEO Service to perform monitoring systems in the country. There are automatic measuring stations right at the mouth of the river to the entry point. This is an achievement since Moldavian institutions are involved in the activities developed under FP program of EU and more important sharing research results with partners from EU and neighboring countries. It helps in developing tailor-made approaches for easy utilization of research results by different levels of authorities and regional stakeholders. In future a shared database on the state of water resources, ecosystems, waste water discharges will be developed for national and international stakeholders.

Moldavian institutions have undertaken several integrated studies on the state of the Dniester River. In addition, a number of public expeditions with participation of experts from the HYDROMETEO Service were organized in the Moldavian part of the Dniester basin. According to the results of different studies, the main issues of concern for the state of aquatic ecosystems in the upper part of the Dniester River are discharge of the waters with rather low temperature from the Novo-Dniestrovsk water body. The influence of this cold stream on the state of ecosystems can be observed on the distance around 30-50 km downstream. Another issue of concern is the change of the hydrological regime in the downstream from the Novo-Dniestrovski water body. This issue is a subject of discussions between Moldavian and Ukrainian authorities

and solutions are being developed, often with involvement of international participation. However, Moldavian authorities indicate insufficiency of proposed measures and demand more actions aimed at reduction of the negative impacts of cold water on ecosystems be undertaken. There is also sharing of experiences and capacity building programs among different institutions through information dissemination on different practices of water management.

In the period 2008-2010 a number of workshops with local authorities were organized with the support of the GWP (through GWP Moldova network) on the use of economic instruments in water management. Around 350 local authorities from different sectors and representatives of civil society were involved in these training workshops. It also contributed to the development of educational curriculum on environmental management, taught at the Free International University of Moldova.

A project “Transboundary cooperation and sustainable management in the Dniester River basin: Phase III – Implementation of the Action Programme” (Dniester-III) started in 2009 with the support of the Swedish and Finnish governments. The Dniester-III project is implemented by OSCE, UNECE and UNEP in close collaboration with authorities and NGOs from Moldova and Ukraine. The aim of the project is to improve cooperation between Moldova and Ukraine on joint management of the Dniester River basin. The principal tasks of the project are to:

- promote the adoption of the new Dniester River basin Agreement
- facilitate cooperation between sanitary-epidemiological services of the two states
- support activities on biodiversity conservation (with focus on fisheries)
- facilitate information exchange at the national and basin-wide levels, and
- raise public awareness and media coverage of the Dniester River basin environmental issues.

The project is a part of the Environment and Security initiative (ENVSEC). Among others, two components of the project are focused on assessment of environmental quality of the basin:

- In July 2011, a hydro-chemical expedition along the Dniester basin was organized by Moldova and Ukraine in July 2011. The objectives of the expedition were to collect information on water quality and sediments in various parts of the river, as well as to improve dialogue and transboundary cooperation in the basin. During the expedition five Moldovan and Ukrainian laboratories carried out more than 1600 samples for analysis of water and bottom sediments collected at 44 sites along the course of Dniester.
- The Moldovan-Ukrainian joint field research of fish fauna in the Lower Dniester – 2011 was conducted in May-October 2011. The objective was to review the status of the fish fauna and to identify important life-sustaining sites for fish (wintering pits and grounds, feeding grounds). During 10 field trips and 3 expeditions to 16 sites, the group of Moldovan and Ukrainian experts measured the depth of 496 sites, carried out 175 hauls and tested 43 water samples from Dubossary Hydropower Plant to the Dniester mouth - some 350 km.

## **Communication and shared vision planning**

Annual conferences and events, such as the Dniester Days, Black Sea Day, conferences and round tables devoted to the wetlands, water, and climate change among others are regularly organized in different parts of the Dniester basin in Moldova. Annual summer camps for teenagers are also organized by the NGO group ‘Eco-Tiras’ with a participation of 20-30 children from different parts of Moldova including Transnistria region. In addition water art-master competitions are organized 2-3 times a year in the Dniester basin for children and young people.

Communication and sharing of information is done through organizing of different national and regional conferences of stakeholders. Normally such events are attended by representatives of central government authorities and during sessions a number of presentations are made by them and civil society institutions. As a general overview of discussions a program of activities is presented to the participants of the annual Forum and thus it becomes familiar to a wide range of business community, local authorities and regional civil society institutions.

## **Outcomes**

### **Performance and impact of the actions**

The main political document in Moldova is the Moldova – EU Action Plan. On the basis of the implementation of activities presumed in the Plan a Program for Association with EU should be signed and ratified in 2013. Activities undertaken in the Moldavian part of the Dniester basin as well on the border with Ukraine showed strong commitment of different levels of authorities and civil society institutions to develop integrated Dniester river management plan. This is a challenge for Moldovan plans to associate with EU in 2013 and to adopt EU standards and norms, which differ from those applied today. Development of co-operative and integrated water management is a long process, and the status of Moldova as EU non-accession country makes implementation of water management, economic and social development problems more difficult to resolve. However, while the country is still only at the beginning of a long path co-operation program, this initial phase can definitely be considered successful. The objective to promote sustainable use of natural resources in the region has been supported at international and national levels following the Integrated Water Resource Management principles in spite of limited resources being allocated at the national level. However, this may have been preferable to receiving mega-projects implemented by external consultancies when there was no sound institutional framework for co-operation at most of governmental agencies. The most important outcomes of the activities performed in the Moldavian part of the Dniester basin are:

- Development of legal aspects and institutional frameworks for cooperation among different stakeholders on national level and starting successful cooperation with Ukrainian authorities;
- Capacity building of regional authorities, NGOs, universities and schools and environmental experts to develop planning strategies for water resource use and management;
- Establishment of procedures for environmental data and information exchange between different national authorities in the region including municipalities.

However, one of the issues of concern at different levels of Moldavian authorities in the Dniester basin is improvement of cooperation in different sectors of water management with Ukrainian authorities and creation of the permanent joint Dniester Commission.

### **Problems encountered – solutions sought**

Although a certain level of progress in the management of the Moldavian part of the Dniester river basin was achieved, a number of new problems have emerged. These mainly relate to the development of integrated Dniester river basin management plan developed on the basis of the EU WFD. This document should be developed in order to achieve good ecological status of the river ecosystems, which is satisfactory. Another problem relates to the status of Moldova as EU non-accession state. It leads to the limitation of capacities of regional authorities to participate in different EU supported programs and thus Dniester River is considered outside the whole process for integrated water management. This leads to inadequate institutional capacity in the region for coordinating the preparation and implementation of a comprehensive catchment management plan in accordance with the requirements of the EU WFD. Other major challenges in the preparation of the Dniester Basin Management Plan are differences in the Moldavian legislation, disparities in procedures, monitoring strategies, environmental data, information gathering and institutional organization. Hence there is need to develop step-by-step guidelines in order to implement IWRM principles. An important indication so far is the new Water Law adopted in Moldova that will facilitate development of planning documents and implementation of the EU standards in the water management practices.

### **Winners and losers, sustainability**

As a result of the development and implementation of the Dniester river management plan a whole community of stakeholders, communities, businesses among others are expected to be winners. This is due to the fact that it facilitates the process of European integration of Moldova and attraction of the best practices not only in water management, but also into other sectors of the regional economy. This will further facilitate creation of new jobs, development of new investment plans.

At the same time political instability across the Dniester river (Transnistria) can affect implementation and thus to slow the process of social and economic development in the region.

Another issue of concern is insufficient financial resources for implementing environmental protection measures in the region. In this context co-operation would have to be developed with international support from the international financial institutions, the European Union, GEF and UNDP. Most of the international assisted projects have been implemented in close co-operation with local experts, which have proved efficient and beneficial to all concerned parties involved in the Dniester river basin management.

### **Lessons learned**

The case illustrates the application of a number of IWRM tools, and although it is at an early stage, several lessons emerge:

- Successful co-operative management of transboundary waters after years of economic crisis and political problems is possible, if the parties involved have the political will and if they create formal mechanisms and the means for co-operation among different stakeholders, for example, implementation of projects aimed at improvement of the water supply and sanitation systems in rural areas and development of network of organic farming in the region.
- Involvement of international funding agencies and experts in the development of the water management structures and instruments is a crucial issue for achieving of the targets of governmental program until 2020 in regard to the European integration. EU institutions have provided very valuable experience in the Moldavian part of the Danube river basin and this should be transferred to the Dniester part of the country
- Co-ordinated efforts of central authorities, local stakeholders, researchers, educators and international funding agencies and organizations in the Moldavian part of the Dniester basin were important factors that have contributed to the success in accumulation of different data and practices needed to develop a plan for integrated water resources management and thus contribute to the social and economic development in the region. This will also facilitate communication between stakeholders as an important mechanism to promote regional initiatives.

### **Replicability**

Experience gained in the frame of the Dniester activities could be used in development of planning documents in the catchments of small rivers, which are not covered by management planning, but river basin councils need this experience.

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# THE DNIESTER RIVER BASIN



Map copied from the UNECE project Dniester 3