

RESPONSES

Chapter 4

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PRESSURE-RELATED RESPONSES

The assessment points to four challenge areas of further action to decrease pressures on transboundary waters: organic pollution, nutrient pollution, pollution by hazardous substances, and – in the case of rivers – hydromorphological alterations.

The relative importance of pollution and pressures due to hydromorphological alterations varies from basin to basin. This relative importance notably depends on past achievements in environmental protection and is strongly related to the effectiveness of implementing existing legislation and other measures related to integrated water resources management.

In many basins, tailor-made investments in the water sector are still needed, such as investments in municipal wastewater treatment plants and wastewater treatment in rural areas; these are often postponed in EECCA due to lack of financing or the preference given to investments in other sectors.

There is a remarkable difference in action undertaken/action needed to be undertaken to improve the status of transboundary waters in EECCA and SEE as compared to basins in Western and Central Europe.

A general comparison of the scale and severity of water management problems between various basins in the region is given in the table below, which shows that:

- Action to decrease water pollution from point sources (e.g. municipal sewage treatment, old industrial installations) is of primary importance in basins in EECCA and SEE;
- The fight against pollution from diffuse sources (e.g. agriculture, urban areas) is of much importance for action in basins in Western and Central Europe (the European Union (EU) countries, Switzerland and Norway).

The reason for such a clear distinction in further action needed is quite obvious:

- Over a period of some 15 years, countries in transition have suffered a decline in their economies, which came hand in hand with a breakdown of essential systems of water supply and wastewater treatment. These countries can substantially improve the status of their transboundary waters, if point pressures from municipal sewage treatment plants and discharges from old industrial installations were dealt with as priority tasks. This requires proper allocation of funds.
- In many countries with market economies, huge investments in point-source pollution control measures were made over two and more decades. This led to a substantial decrease of the pollution load from these sources hand in hand with an increase of the relative importance of the pollution load from non-point sources. Dealing with diffuse pressures (e.g. agriculture, urban land use) is therefore seen a priority task.

Diffuse pressures from agriculture

In Western and Central Europe, the legal framework to cut down pollution has been established many years ago (e.g. EU Directives; national legislation in the EU countries, Norway and Switzerland) and technical guidance to control water pollution by fertilizers and pesticides in agriculture is broadly available. However, given reports by EU countries located in the drainage basins of the Mediterranean Sea, the East Atlantic Ocean, the Baltic Sea and the Black Sea, the impact of agriculture on the quality of water resources is most striking, also because the implementation of these pieces of legislation and recommendations seems to take more time than expected. Experience has also shown that command-and-control approaches need to be supplemented by voluntary measures and innovative financing schemes.

Although currently classified as “widespread but moderate”, diffuse pressures from agriculture in EECCA and SEE basins will increase in the future alongside the revival of economy; thus, the use of fertilizers and pesticides will be much higher than in the last decade, causing negative effects on transboundary waters. Apart from legal and regulatory measures, it is important to focus on educa-

RELATIVE IMPORTANCE OF PRESSURES IN TRANSBOUNDARY RIVER BASINS

Scale and severity of problem *	Basins in EECCA and SEE	Basins in Western and Central Europe
Widespread and severe	Point pressures: municipal sewage treatment, old industrial installations, illegal wastewater discharges, illegal disposal of household and industrial wastes in river basins, tailing dams and dangerous landfills	Diffuse pressures: agriculture, urban land use
	Abstraction pressures: agricultural water use / water sharing between countries	Abstraction pressures: agricultural water use (Southern Europe)
	Morphological pressures: hydroelectric dams, irrigation channels	Morphological pressures: hydroelectric dams, river alterations
Widespread but moderate	Diffuse pressures: agriculture (except in some basins in Central Asia, where the impact is severe)	Other (point) pressures: industries discharging hazardous substances
Limited but severe	Other (diffuse, point) pressures: non-sewered population, mining and quarrying	Other (point) pressures: mining and quarrying
Limited and moderate	Other (point) pressures: new industrial installations	Other (diffuse, point) pressures: non-sewered population, municipal sewage treatment

* In this generalization of river basins in the region; “widespread” means that the problem appears in many river basins, whereas “limited” indicates that only some basins are affected.

tion, training and advice to promote understanding of good agricultural practice and respect for existing legislation by various economic entities.

Abstraction pressures

Abstraction pressures within the national parts of the basins (in particular, water use by irrigated agriculture in EECCA, SEE and South-Western Europe) are among the most important water-quantity issues. In some basins,

and navigation, which became obvious in rivers shared by Kazakhstan and the Russian Federation, where new (private) operators are now managing reservoirs formerly managed under government responsibility. There is another conflict potential, namely the conflict between water use for economic activities and water for the maintenance of aquatic ecosystem. This conflict is particularly pronounced in the basin of the Ili River, shared by China and Kazakhstan. Also in other basins in EECCA and SEE,



particularly in Central Asia, the predominant water use for agriculture has also led to such water-quality problems as salinization of soils and high mineral salt contents in water bodies.

In a transboundary context, there are at least four areas of existing or potential conflicts over water. One area is the conflict between hydropower production and irrigational agriculture, which is particularly obvious in the basins of the Amu Darya and Syr Darya. Another area is the conflict between hydropower production

ecological requirements of the water bodies are rarely considered and win-win solutions to mitigate existing – and avoid future – conflicts over water resources are not yet drawn up. In many basins in the EECCA region, water allocation among riparian countries continues to be an issue, because disagreement still exists over use quotas for the upstream and downstream users belonging to different States, as it is the case for some rivers in the discharge area of the Caspian Sea.

Hydromorphological pressures

One often overlooked problem in basins in EECCA and SEE (with the exception of reports from Central Asian countries and the Russian Federation) is linked to pressure arising from hydroelectric dams, river alterations, irrigation channels and other hydromorphological changes in river basins. The assessment of water resources in such river basins as the Danube, Elbe, Rhine, Meuse and Scheldt has clearly pointed to the severity of these pressures and has stimulated action to counteract them.

Other pressures

Other pressures in EECCA basins mostly refer to big industrial enterprises which recently became operational; these seem to cause fewer problems, as they were equipped with adequate wastewater treatment technologies. However, given economic development, it should be expected that, the relative importance of this type of pressure will increase in the future.

As concerns other pressures in basins in Western and Central Europe, a particular challenge area still to be addressed by proper response measures is the control and reduction of pollution by new substances produced by the chemical industry, including new pharmaceuticals that cannot be eliminated in wastewater treatment processes, as well as the control of pollution by priority substances given provisions of the Water Framework Directive and other applicable directives. In some other basins shared by countries with market economies, untreated or insufficiently treated industrial wastewater is still of concern and breakdowns of municipal wastewater treatment systems are the reason for significant discharges of polluted waters into rivers. The legal framework exists with the relevant directives, and compliance with these directives is needed to achieve a good status of water bodies. In some new EU countries, inappropriate wastewater treatment is still a problem, and the national sewerage and wastewater treatment plans are targeted to fulfil the requirements of the relevant directives by 2010 and 2015, respectively.

Other point pressures also refer to mining. In some basins, the mining industry (e.g. copper, zinc, lead, uranium mining) is one of the most significant (past or new) pollution sources, and a number of storage facilities (including tailing dams for mining and industrial wastes) exert significant (or at least potentially significant) pressures. In parts of the region, mining of hard

coal has also significantly changed the groundwater flow. Opencast mining of brown coal, particularly in parts of Central Europe, is also lowering the groundwater level. Thus appropriate measures need to be implemented in many cases to control the adverse impact on water quality and quantity. After the termination of mining activities, rehabilitation measures need to be implemented to avoid further adverse impacts on aquatic and terrestrial ecosystems and/or to restore damaged landscapes and ecosystems, as is done in basins such as the Elbe, Oder and Rhine.

GOOD GOVERNANCE

Although the policy, legislative, institutional and managerial framework for transboundary cooperation has been developed over the last decade, the assessment revealed a number of deficiencies that call for further action.

Transboundary level

Bilateral and multilateral agreements are the basis for determined and reliable cooperation. Some river basins are still not covered by agreements and some of the existing agreements need to be revised particularly with regard to such issues as joint monitoring (see below), warning for hydrological extreme events and industrial accidents, sustainable flood management, and sharing/allocation of water resources. Major gaps also relate to the incorporation of groundwater management issues, which should be overcome most urgently.

Joint bodies are a prerequisite for effective cooperation and the joint monitoring and management of transboundary waters as is demonstrated by the well functioning joint bodies for the rivers Elbe, Danube, Meuse, Moselle/Saar, Rhine, Oder, Scheldt and Sava as well as the Finnish-Russian waters and the Kazakh-Russian waters. For such other basins as the Chu and Talas and Albanian-Greek waters, joint bodies have also been set up but are still in their infancy.

Most other basins lack dedicated joint management; lack of political will for joint action and cumbersome national procedures (coordination between national authorities/sectors) often hamper negotiations over joint measures and delay agreements on the mandates and tasks of joint bodies.

In these cases, riparian countries may decide to establish, as a first step, specific joint working groups. In these groups, experts from different disciplines should meet regularly to agree upon joint measures on integrated water resources management, including the implementation of monitoring and assessment activities, as well as the related technical, financial and organizational aspects. This has led to positive results, even in the Amur River basin (China and the Russian Federation) and the Tumen River basin (China, Democratic People's Republic of Korea, and the Russian Federation), which in the past have had a high water-related conflict potential among the riparian countries.

As a second step, joint bodies, such as river commissions or other arrangements for cooperation should be foreseen, and particular efforts should be made to build and strengthen the capacity of these joint bodies. The setting up of permanent secretariats for joint bodies can be an asset.

In a number of basins shared by EU countries with non-EU countries, there is still a conflict in applicable legislation leading to different requirements in such fields as monitoring and classification of water bodies and performance parameters of treatment technology. With the reform of the Water Law in countries bordering the EU, an approximation to EU legislation may be accomplished soon, allowing upstream and downstream countries to rely on almost the same standards.

Other EECCA countries face additional challenges. Pollution control legislation based on very similar "maximum allowable concentration levels" allows straightforward comparisons between water quality in upstream and downstream countries, but the legislation seems to be unrealistic to be complied by wastewater treatment technology. Rather than amending legislation in the short term, a straightforward way may consist in a step-wise approach, i.e. setting "realistic" target values for water quality that can be achieved over the medium term, and making these target values intermediate goals in the joint river basin management plans.

National policies and legislation

National policies and legislation should be further developed to regulate economic activities so that they do not adversely affect water and water-related ecosystems. A particular issue is agriculture, where perverse incentives

that subsidize the overuse of natural resources and the decline of ecosystem health should be removed.

Legislation should be drawn up and applied to reduce fragmentation between, and improve coordination among, government departments and institutions. This requires a clear definition of the responsibilities and duties of ministries for the environment, agriculture and forestry, transport, energy, economy and finance. Legislation should also provide for coordination with stakeholders, e.g. farmers' associations and water users' groups.

Monitoring, data management and early warning

Further issues for cooperation include joint monitoring and data management. Data upstream and downstream of the borders between countries are often not comparable due to uncoordinated sampling, measurement and analytical (laboratory) methods in riparian countries. Joint programmes on monitoring, data management and assessment are therefore the key to integrated water resources management. This also applies to transboundary groundwaters as the current low level of transboundary cooperation and deficient technical guidance hamper systematic monitoring and assessment of their status.

There is a need to secure national funding, as for many basins in EECCA, the availability of data too often depends on the lifetime of international assistance projects.

Early warning (quality and quantity) is another issue of concern. Although industrial accidents and severe floods were often an important catalyst for joint measures in transboundary basins, joint action should be taken on time to prevent disasters or reduce their consequences. In many basins, this requires the establishment of early warning systems for floods, droughts and accidental pollution.

River basin management plans

Plans for integrated water resources management in a transboundary context still need to be developed for almost all basins in the region and the countries' analysis has pointed to the essential elements to be included in these plans, river-basin-by-river-basin. Proper attention should be devoted to land-use planning and management given the potential positive and adverse effects of land use on the hydrological and chemical regimes of transboundary waters. Management plans should cover both surface water and groundwater bodies, although

the responsibility for protection and management may rest with different governmental authorities.

For river basin management plans, the identification and development of adaptive strategies towards effects of climate change on water management, including floods and droughts, on different levels of time and scale, and the identification of information needs in support of these strategies is also important. Such adaptive strategies should include the safe operation of water supply and sanitation facilities in urban and rural areas.

Platform for multi-stakeholder dialogues

There is a need for establishing a platform for a national interdepartmental and multi-stakeholder (e.g. Governments, NGOs, the private sector, water users' associations) dialogue on integrated water resources management. Early experience from the National Policy Dialogue under the EU Water Initiative that started under the Water Convention's overall guidance in Armenia and Moldova may serve as guidance for similar dialogues in other countries.

