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BRIEFING
ENVI 506 EN
PROTECTION OF THE BALTIC SEA
IN VIEW OF ENLARGEMENT

*The opinions expressed are those of the author
and do not necessarily reflect the position of the European Parliament*

This document is published in English.

You will find the full list of 'environment' briefings at the end of this publication.

Summary

The Baltic Sea is the largest brackish-water area in the world and amongst the most polluted seas.

The state of its marine habitat is a reflection of natural and human factors such as: the limited water exchange with adjacent seas, the formation of salinity and temperature barriers between surface and bottom water, the continuous pressure of pollution and overexploitation from human activities.

The Baltic Sea Region has become one of the most dynamic regions in Europe with good perspectives for economic development, but as a very sensitive environment it needs special protection.

One of the most exciting challenges of the enlargement is ensuring that the environmental protection in the new members will be at least as high as in the old members. As a shared water resource, the Baltic Sea will be one of the first beneficiaries of this challenge.

This study attempts to show that co-operation between the Baltic States will have a positive impact on ensuring protection of the environment in the region.

Publisher: European Parliament
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Authors: Chiara Scalabrino (former Ramón y Cajal scholar)

Editor: Peter Palinkas
Division for Industry, Research, Energy, Environment and STOA
Tel. : +352 4300 22569
Fax : +352 4300 27718
E-Mail : DG4-industrie@europarl.eu.int

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1. INTRODUCTION¹

The Baltic Sea is a relatively shallow semi-enclosed sea. It is the largest brackish-water area in the world, its mean depth is only 55 m and it consists of a series of basins, most of them separated by shallow areas or sills.

The state of the Baltic Sea marine habitat is a reflection of natural and human factors such as: the shape of its seabed, the limited water exchange with adjacent seas (it takes 25-35 years for its waters to be refreshed by ocean water), the formation of salinity and temperature barriers between surface and bottom water, the continuous pressure of pollution and overexploitation from human activities.

The Baltic Sea is amongst the most polluted seas in the world and needs special protection because it has always been of great importance for the people living around it, providing a natural bond as well as routes of navigation. Fisheries remain a valuable part of people's livelihood and is also a recreational resource of growing value. Because of the very specific hydrographical, chemical and physical conditions of the Baltic Sea Area, and its geological history, it possesses quite unusual fauna and flora. Marine and freshwater organisms live side by side, and there are a number of living relicts.

A total of nine countries border the sea: Denmark, Estonia, Finland, Germany, Latvia, Lithuania, Poland, Russia, and Sweden. The sea also receives surface water drainage from five other countries: Belarus, Czech Republic, Slovak Republic, Norway, and Ukraine. About 80 million people live within the drainage area.

Today, the main threats from this densely settled and intensively industrial area, are eutrophication caused by the excess of nitrogen and phosphorus and high levels of toxic substances such as halogenated hydrocarbons (DDT, PCB, HCB, etc.), heavy metals (mainly cadmium, mercury and lead) and petroleum hydrocarbons (PAH). Pollutants originate from point sources like municipal and industrial effluents and from diffuse sources like agriculture and forestry, atmospheric deposition and discharges from increased shipping.

Other threats to the Baltic marine environment include the use of certain types of fishing gear, habitat destruction and the introduction of alien species, construction (dredging and dumping of dredge material), recreational activities.

The Baltic Sea Region has become one of the most dynamic regions in Europe with good prospects for economic development. Four of the countries in the Baltic Sea drainage area – Denmark, Finland, Germany and Sweden – are members of the European Union. In addition, the Czech Republic, Estonia, Latvia, Lithuania, Poland, Slovakia and Ukraine have applied for membership of the EU.

The EU enlargement has a positive impact on the protection of the environment in the region.

¹ The above general information on the Baltic Sea is based on different sources: "Co-operation between the eight Baltic and Nordic Countries", Ministry of Foreign Affairs of the Republic of Latvia, <http://www.mfa.gov.lv>; The Baltic Sea Environment Home Page, <http://www.envir.ee/baltics/baltic.htm>; "Global Environment Outlook 2000", UNEP, <http://www.grida.no/geo2000/english/index.htm>; "The Baltic Sea Area Clean Seas Guide", HELCOM, <http://www.helcom.fi/>; "Raising environmental awareness in the Baltic Sea area", Partanen-Hertell, M., Harju-Autti, P., Kreft-Burman, K. and Pemberton, D., 1999, (ISBN 952-11-0528-3), <http://www.vyh.fi/eng/orginfo/publica/electro/fe%5F327/fe%5F327.htm>

In this work, only the accession countries bordering the Baltic Sea – Estonia, Latvia, Lithuania and Poland – will be taken into consideration, as the rest of the accession countries occupy a minor part of the drainage area.



2. MAJOR THREATS TO THE BALTIC MARINE ENVIRONMENT

After World War II, the rapid development of heavy industries, increasing use of chemicals in agriculture and rapid population growth led to growing pressure on the Baltic Sea. The environmental situation in many parts of the Baltic Sea has deteriorated rapidly. Together with stagnation of the deeper water, the pollution of the Baltic Sea has now become a threat to its living resources.

The quantities of contaminants entering the Baltic Sea varies from year to year, and the input is influenced by both natural and anthropogenic factors.

These pollutants are²:

Inorganic Substances

Compounds or derivatives of nitrogen, phosphorus, sulphur, and carbon.

They originate from point sources like industry and municipalities, and also from diffuse sources such as agriculture and traffic.

Much of the inorganic pollution load from industry and municipalities reaches the Baltic Sea via waste water drainage into the rivers. Some of the pollution from industry also escapes into the atmosphere through smokestacks. The agricultural pollution load reaches the sea mainly by surface water drainage into the rivers. These pollutants serve as nutrients in the Baltic Sea: too many results in the eutrophication of seawater.

Organic Substances

Organic compounds, also called hydrocarbons, are relatively large molecules composed mainly of carbon and hydrogen. Some organic compounds found in the Baltic Sea environment and identified as potentially harmful are DDT and PCBs, that were used widely as agricultural pesticides in the Baltic Sea area.

Due to uncontrolled use, large amounts of the organic toxins reached the sea, carried by wind or by rivers. These toxins were taken up by various species of animals where they caused unusual damage to the overall health.

Other toxins have now taken the place of DDT and PCB. The polychlorinated compounds PCTs, PCDDs, and PCDFs are similar to PCBs, extremely poisonous, and difficult to metabolise.

Both agriculture and industry (primarily pulp and paper) are responsible for a large part of the organic compound load to the Baltic Sea. Volatile organic compounds (VOC) also originate from traffic sources.

Heavy Metals

Mercury (Hg), Cadmium (Cd) and Lead (Pb) cause the most acute damage to the Baltic marine habitat.

Toxic concentrations of trace metals interfere with the normal metabolic processes of fish and other wildlife in the Baltic Sea. These metals can be transferred to humans who consume the fish; the metals have adverse effects on human metabolic processes as well.

Maximum levels of trace metals are found in the sediment offshore from the points of discharge of municipal and industrial waste water runoff. Metals can also reach the sea by air from industrial smokestack discharges and traffic exhausts.

Oil

Oil pollution in the Baltic Sea occurs from a variety of sources. The most prevalent are: mineral oil spills from ships and off shore drilling platforms, dilute oil discharges from coastal industries and municipalities, airborne volatile hydrocarbons from fossil fuel combustion and traffic exhaust, hydrocarbon vapours from oil terminals and filling stations.

Input via rivers, discharge of municipal and industrial wastes and atmospheric fallout account for over 80% of the total annual input.

Oil pollution enters the marine habitat in small, localised areas, but often can be driven for great distances by winds and currents, causing severe pollution along whole stretches of coastline. Worst affected are seabirds and ecosystems of the seabed.

² "Environment of the Baltic Sea Area 1994-98", Baltic Sea Environment Proceedings No. 82A, HELCOM, 2001

3. WATER SITUATION IN THE ACCESSION COUNTRIES IN THE “LATE 90s”³

Here follows a short overview of what was the state of the water environment in the accession countries bordering the Baltic Sea when they submitted their application.

3.1. ESTONIA

According to information from the Estonian Environment Ministry released in 1996, on the basis of its own classification system, only 1% of stretches of water are highly polluted, those in the area of the former Russian military bases. Fossil fuels, a wide variety of chemicals and heavy metals are contributory factors. In the industrial regions of the north, too, there is serious pollution of heavy metals and chemicals.

Estonia has adequate water reserves and only 50% of the annual water output are consumed.

In 1995 drinking water quality failed to comply with the statutory bacteriological standards in 10.7% of cases. In 23.7% of cases there was excess chemical pollution.

The quality of the ground water well below the surface is very good, but higher up it is polluted by nitrates. Thanks to reduced use of fertilisers, the situation has improved in recent years. In the area around Narva, the ground water is contaminated, thanks to oil shale production, by sulphates, phenols and other toxic substances. In the northeast of the country the excessive use of water and the production of oil shale have resulted in a dangerous lowering of the ground water level.

Eutrophication is still a major problem. Despite reductions in recent years, organic harmful substances and heavy metals have also reached critical values in certain instances. The total volume of discharged waste water has been cut by a third since 1990. With the reduction in discharges of waste water there has also been a reduction in the volume of harmful substances discharged into lakes and rivers. One striking fact is that since 1990 the volume of organic substances discharged has been reduced by 70%. Discharges of suspended matter have been halved since 1990 and discharges of nitrogen and phosphates have been reduced by 44% each. Pollution of water by oil products has fallen by 60%, with an 85% reduction in phenol discharges which come largely from the oil industry.

3.2. LATVIA

Most Latvian waters must be considered to be slightly or moderately polluted. The main cause is the discharge of organic substances from untreated waste water and runoff from intensively cultivated agricultural land with the associated reduction in the oxygen content (eutrophication).

However, in the period 1991 to 1994 there was a marked drop in waste water quantities (27%) and thus also of water pollution. This circumstance was due to the noticeable decline in industrial production and the putting into operation of some sewage treatment plants.

The reduced agricultural activity in recent years led to a decline in nitrate emissions.

³ Based on the environmental series briefings No 5, 4, 9 and 7 prepared by the DG4 of the E P. Most of the information there available dates back to 1996

The Gulf of Riga and the coastal waters of the Baltic are affected by the discharges from the rivers flowing into them, which leads to a constant rise in phosphorous and nitrogen concentrations. As a whole this area can be classified as moderately polluted, with the level of pollution being particularly high at certain points, for example in the immediate vicinity of estuaries, ports and mineral workings. For these reasons bathing restrictions have been required repeatedly.

Latvia has a natural wealth of ground water resources which, with the exception of a few areas, can guarantee water supplies of acceptable quality. The pollution of ground water is caused chiefly by industrial plants, waste disposal sites and agricultural activities.

Recent studies have shown that 30% of the drinking water in local water supply systems does not satisfy the relevant Latvian quality standards because of high levels of chemical pollution and 8% because of excessive bacteriological pollution. This situation is mainly caused by the lack of sewage treatment plants and the generally poor technical condition of the waste water systems.

3.3. LITHUANIA

In 1996 Lithuania used approximately 5.7 billion cubic metres of water. Of this amount over half was cold water extracted for cooling the Ignalina nuclear power plant. The significant increase in water consumption in 1996 is notable, and is largely attributed to increased industrial demand.

The proportion of waste water treated expressed as a percentage of total polluted waste water increased noticeably from 21.9% to 39.5% in 1996. This progress can largely be attributed to both the modernisation and the new construction of purification plants in and around the largest Lithuanian cities (Vilnius, Kaunas, and Klaipeda) in the last few years, achieved with help from Finland and the EU.

Pollution of Lithuania's rivers is considerable, mainly due to the influx of large amounts of untreated or insufficiently treated waste water and other pollutants from the farming community. The biggest problem is river pollution by organic substances. Another big problem is the pollution of the river Nemunas, Lithuania's largest river, from discharges into its upper reaches of waste water from the paper mills operating in the Russian exclave of Kaliningrad.

Lakes, which make up 1.5% of Lithuania's surface area, are notably less polluted than the rivers. In general, they are mildly alkaline, with an acceptable oxygen level. Even the level of lake pollution caused by fertilisers is not particularly high, although it has risen over recent decades. Lithuania's nitrate limit of 0.5 g/l is in line with the European limit and is exceeded only rarely.

Kura Bay is a freshwater lagoon located at the southern end of the Lithuanian Baltic coast and the northern part of the Russian area of Kaliningrad. Into the lagoon flow the waters of the river Nemunas and many other Lithuanian rivers, with the total inflow of water feeding in from a catchment area supporting a population of 5 million inhabitants. Because of the high level of pollution in the rivers and the low speed with which water flows out into the Baltic over the Strait of Klaipeda, levels of organic and inorganic pollutants in the lagoon are extremely high. This pollution is compounded by significant bacteriological pollution. Swimming in the lagoon, for example, has long been impossible. The oxygen level varies according to seasonal factors, and in early summer low oxygen levels frequently lead to fish dying. About 80-90% of the pollutants heading into the lagoon flow through the Strait of Klaipeda into the Baltic Sea, with the result that the coastal waters in and around the Strait of Klaipeda are also strongly affected. This led to the closure of beaches in the locality in 1992 because of excessive growth of algae, and again in 1993 because of a high Coli bacteria count.

The operation of the power plant in Ignalina does appear to have an effect on the eco-system of the neighbouring Lake Druksiai. Since the power station does not have cooling towers, water for cooling is taken directly from the lake. The hot water is fed untreated back into the lake. The rise in temperature is leading to the destruction of the existing eco-system. It has to be assumed that the extra heat is also being transferred to connecting rivers. Furthermore, a high level of radioactivity has been identified on the bed of the lake. Causing particular concern is the very high concentration of tritium (half-life 12.3 years) at certain parts of the lake. Even higher levels have been sporadically identified in groundwater.

3.4. POLAND

There is a water shortage in Poland attributable to limited water reserves and low annual precipitation. In addition to this, water consumption is two to three times higher than in other industrialised countries.

Water quality is poor. Rivers carry water equating to the bottom category for 90% of their length; this cannot be used even for agricultural irrigation or industrial purposes. This is attributable to the high heavy metal content and to a number of salts originating in the waste water from the pits in the Upper Silesia coal-mining areas, but also to the enormous shortcomings in waste water treatment.

Thirty-three per cent of waste water requiring treatment is not treated at all, 35% undergoes only mechanical treatment, and only 32% are biologically/chemically treated. This is because about half of industrial companies do not have appropriate treatment plants. Only 57% of towns and 2% of the rural population are connected to sewage treatment plants, the effectiveness of which is anyway limited. Admittedly, water consumption has declined since 1989, and the amount of untreated water has been cut by 36%. However, this is mainly the result of a decline in economic activity and not of the strict application of environmental legislation.

4. PROTECTION OF THE BALTIC SEA AT A NATIONAL AND INTERNATIONAL LEVEL

Special protection is needed for the Baltic Sea, as it is a very sensitive environment. It is important that the state of the sea and inland waters must not deteriorate further due to human activity.

Any health risks or other hazards related to reduced water quality must be eliminated. The aquatic environment must be healthy and safe, and the water quality must be suitable for the drinking water supply as well as for other activities such as fishing, tourism and recreational use. The preservation of the biodiversity and other special natural features of marine and other aquatic, coastal and shoreline ecosystems must be ensured⁴.

The achievement of these environmental protection goals depends on the single national environmental policies but, as the Baltic Sea is a shared natural resource, also requires cooperation between all countries in its catchment area.

⁴ Finnish Environmental administrations, www.vyh.fi

4.1. LEGISLATION AND POLICIES

At a national level, environmental legal systems were established differently in the countries in the Baltic Sea drainage area:

Norway, Belarus and Russia are not members of the EU and are therefore not bound to meet the requirements of the EU directives. However, Norway has signed the EEA agreement obliging it to respect environmental standards, and Russia has signed the Partnership and Co-operation Agreement which covers environmental co-operation.

Four of the countries in the Baltic Sea drainage area – Denmark, Finland, Germany and Sweden – are members of the European Union and their legislation was harmonised with the relevant EU legislation. The Central Eastern Europe countries - Czech Republic, Estonia, Latvia, Lithuania, Poland, Slovakia and Ukraine - have applied for the membership of the EU and have begun the process of adapting their domestic legislation, institutions and structures to European Union standards. These countries need to find an acceptable balance between adapting to Western European policy and maintaining existing practices where these are environmentally beneficial.

4.1.1. EUROPEAN COMMUNITY WATER POLICY⁵

The objective is to establish an integrated water management policy.

In the Communication of 21 February 1996 on Community water policy, the Commission:

1. Sets out its approach to water protection.
2. Details the objectives of such a policy, namely:
 - secure supply of drinking water;
 - secure supply of drinking water or non-drinking water to meet economic requirements other than human consumption;
 - protection and preservation of the aquatic environment;
 - restriction of natural disasters (drought, floods).
3. Defines the various types of pollution which may affect water:
 - point source pollution;
 - diffuse source pollution;
 - accidental pollution;
 - acidification;
 - eutrophication.
4. The principles of this policy are as follows:
 - high level of protection;
 - precautionary principles;
 - preventive action;
 - damage to be rectified at source;
 - principle of polluter pays;
 - integration of this policy in other Community policies;
 - use of available scientific and technical data;
 - variability of environmental conditions in the regions of the Community;
 - costs/benefits;
 - economic and social development of the Community;
 - international cooperation;
 - subsidiarity.

⁵ Communication of 21 February 1996 on Community water policy, Commission, <http://europa.eu.int/scadplus/leg/en/lvb/l28002a.htm>

5. In order to rationalise existing legislation on water management and pollution and step up controls on pollution at Community level, a Water Resources Framework Directive has entered into force on the 22.12.2000

4.1.1.1 Framework Directive in the field of water policy

The Directive 2000/60/EC of the European Parliament and the Council, of the 23rd of October 2000, has the objective to establish a Community framework for the protection of inland surface waters, transitional waters, coastal waters and groundwater, in order to prevent and reduce pollution, promote sustainable water use, protect the aquatic environment, improve the status of aquatic ecosystems and mitigate the effects of floods and droughts.

1. Under this Directive, Member States have to identify all the river basins lying within their national territory and assign them to individual river basin districts. River basins covering the territory of more than one Member State will be assigned to an international river basin district. By 22 December 2003 at the latest, a competent authority will be designated for each of the river basin districts.
2. At the latest, four years after the date of entry into force of this directive, Member States must complete an analysis of the characteristics of each river basin district, a review of the impact of human activity on the water, an economic analysis of water use and a register of areas requiring special protection. All bodies of water used for the abstraction of water intended for human consumption providing more than 10 m³ a day as an average or serving more than 50 persons must be identified.
3. Nine years after the date of entry into force of the Directive, a management plan and programme of measures must be produced for each river basin district, taking account of the results of the analyses and studies provided for in point 2.
4. The measures provided for in the river basin management plan seek to:
prevent deterioration, enhance and restore bodies of surface water, achieve good chemical and ecological status of such water and reduce pollution from discharges and emissions of hazardous substances;
protect, enhance and restore all bodies of groundwater, prevent the pollution and deterioration of groundwater, and ensure a balance between abstraction and recharge of groundwater;
preserve protected areas.
5. The abovementioned objectives have to be achieved at the latest fifteen years after the date of entry into force of the Directive, but this deadline may be extended or relaxed, albeit under the conditions laid down by the Directive.
6. The Member States will encourage the active involvement of all interested parties in the implementation of this Directive, in particular as regards the river basin management plans.
7. Temporary deterioration of bodies of water is not in breach of the requirements of this Directive if it is the result of circumstances which are exceptional or could not reasonably have been foreseen and which are due to an accident, natural cause or *force majeure*.
8. By 2010, Member States must ensure that water-pricing policies provide adequate incentives for users to use water resources efficiently and that the various economic sectors contribute to the recovery of the costs of water services including those relating to the environment and resources.
9. The Commission will submit a proposal setting out a list of priority substances selected amongst those which present a significant risk to or via the aquatic environment. Measures to control such substances, as well as quality standards applicable to concentrations thereof, will also be proposed. The aim of such measures is to reduce, stop or eliminate discharges, emissions and losses of priority substances. After adoption, this list will form Annex X to this Directive.
10. Two years after the entry into force of this Directive, the Commission will publish a proposal with specific measures to prevent and control the pollution of groundwater.
11. At the latest twelve years after the date of entry into force of this Directive and every six years thereafter, the Commission will publish a report on the implementation of the Directive. The Commission will convene when appropriate a conference of interested parties on Community water policy which will involve Member States, representatives from the competent authorities, the European Parliament, NGOs, the social and economic partners, consumer bodies, academics and other experts.
12. The Directive lays down that Member States will determine penalties applicable to breaches of the provisions adopted which are effective, proportionate and dissuasive.
13. Seven years after the entry into force of the Directive, the following legislation will be repealed:

Directive 75/440/EEC (Surface water for drinking);
 Decision 77/795/EEC (Exchange of information on quality of surface fresh water);
 Directive 79/869/EEC (Analysis of surface water for drinking).
 Thirteen years after the entry into force of the Directive, the following legislation will be repealed:
 Directive 78/659/EEC (Quality of fresh waters in order to support fish life);
 Directive 79/923/EEC (Quality of shellfish waters);
 Directive 80/68/EEC (Protection of groundwater against dangerous substances);
 Directive 76/464/EEC (Discharge of dangerous substances), with the exception of Article 6, repealed on the date of entry into force of this Directive.

4.1.2. ADOPTION OF THE “ACQUIS COMMUNITAIRE” BY CEE COUNTRIES

The stringent environmental requirements of the European Union aim to avoid the risk of major environmental disasters, to decrease the level of environmental pollution, the risks to public health and to evade distortion of competition in the internal market.

Adopting EU legislation is one of the obligations of membership, which the candidate countries shall assume upon acceding to the EU. The reason behind this requirement is that if the CEEC were allowed to not fully accept the *acquis communautaire*, they would then be at an economic advantage, which would create unfair competition or environmental dumping.

The major challenges of the environmental *acquis* are the financial implications and the fact that the *acquis communautaire* is a moving target. The environmental concerns have been growing at a great rate in the last decade with the accession of the 'greener' countries Austria, Finland and Sweden in 1995. The candidate countries have been transposing and implementing legislation, which has been adapted to many changes in the last years⁶.

In the Central Eastern European countries bordering the Baltic, the implementation of requisite laws, policies and regulations is proceeding well. Estonia, Latvia, Lithuania and Poland have brought their legislation towards conformity with EU legislation in conjunction with their approximation process. Since 1998 The Commission has reported every year the *Progress towards Accession* made by each candidate country. The following will give an overview of what is the situation today.⁷

4.1.2.1 Estonia

In 1991, Estonia declared the restoration of its de facto independence. Since then, Estonian Governments have pursued a liberal free-trade policy which has achieved a rapid transformation to a market economy. Estonia submitted its application to accede to the EU in 1995, started negotiations in March 1998 and its aim is to become an EU Member State in 2003.

In the *2001' Report on Progress towards Accession* the Commission states that in the field of environment: With regard to the integration of the environment into other policies, Estonia continued to implement the action programme for sustainable development adopted by all Baltic Sea countries in the framework of “Agenda 21 for the Baltic Sea region”.

In the field of water quality, the Water Act Amendment Act was passed in December 2000, introducing the catchment-based approach into water legislation. Additionally, based on the Act, four governmental regulations were adopted in 2000 and 2001. The act was prepared in order to harmonise Estonian legislation with the EC Water Framework Directive. With respect to implementation of the Bathing Water Directive, the relevant Estonian legislation entered into force in April 2001. The construction of treatment plants for drinking water and wastewater has continued. The water monitoring programmes are under reorganisation. Efforts to meet microbiological parameters for drinking water need to be strengthened.

⁶ “Environment and Energy: Challenges of Enlargement”, Directorate-General for Research, Division for Industry, Research, Energy and Environment, Briefing Paper ENVI 501 EN, *Environment Series*, EP

⁷ “Regular Reports on Progress towards Accession” (Estonia, Latvia, Lithuania, Poland), European Commission, 2001

The enforcement record of the Environmental Inspectorate is only slowly improving. Legislation has been amended in order to enable the EEI to punish offenders in the waste and water sectors. The Environmental Monitoring Programme was revised and renewed in autumn 2000.

Some advancement has been made in most areas in relation to both transposition and implementation of EC environmental legislation in Estonian law, however, priority needs to be given to the complete transposition of the *acquis*, in particular as regards water quality and waste management. Estonia should also accelerate the implementation of the *acquis* regarding discharge of dangerous substances in the aquatic environment (establish pollution reduction programmes) and nitrate pollution from agricultural sources. Efforts to meet microbiological parameters for drinking water need to be strengthened.

4.1.2.2 Latvia

Latvia split from the Soviet Union in 1991 and has been an independent republic since August of that year. Application for accession was submitted in 1995.

In the 2001' *Report on Progress towards Accession* the Commission states that in the field of environment: With regard to the integration of environment into other policies, Latvia continued to implement the action programme for sustainable development adopted by all Baltic Sea countries within the framework of "Agenda 21 for the Baltic Sea region".

The water quality, the new Law on Pollution, which was adopted in March 2001 and entered into force in July 2001, determines emission limit values for industries and environmental quality standards, and sets basic principles in the water sector for pollution prevention and control. At present, projects to improve drinking water quality have been completed in 10 towns.

The transposition in the field of water quality needs to be completed, including the transposition of the Framework Directive and the Urban Waste Water Treatment and Drinking Water Directives.

The water quality sector requires particular attention: urban waste water, drinking water, establishment of pollution reduction programmes for List II substances, and designation of vulnerable zones under the nitrates directive.

Concerning the investment efforts necessary to meet EC standards, compliance with the Urban Waste Water Treatment Directive is estimated to cost € 526 million, the Drinking Water Directive € 451 million and the maintenance cost for both Directives would be around € 218 million.

4.1.2.3 Lithuania

Lithuania gained independency on the 6th of September 1991. Application for EU Accession was submitted in 1995 and accession negotiations started in February 2000.

In the 2001' *Report on Progress towards Accession* the Commission states that in the field of environment: Local Agenda 21 has been drawn up for 15 cities. Lithuania participated in various bilateral, regional and international forums on sustainable development and continues to implement the action programme for sustainable development adopted by all the Baltic Sea countries in the framework of "Agenda 21 for the Baltic Sea region".

In the field of water quality, Lithuania has decided that the whole territory will be identified as a sensitive area for the purposes of urban wastewater treatment. As concerns the ground water protection, partial transposition was achieved. A code of good agricultural practice was adopted in line with the nitrates Directive and the requirements for bathing water were transposed. In July 2001, the Seimas adopted the Law on Drinking Water which will enter into force in July 2003.

With regard to the institutional structure, the Ministry has established a new Water Department based on the former hydrographical service and the former fishing department.

Lithuania has achieved a good level of alignment with the EC environmental *acquis*.

Implementation is a major challenge, in particular for the water and waste sectors, which require heavy investment or investment by private enterprises, such as for the IPPC, VOCs from storage and distribution of petrol and fuel quality requirements. Lithuania has done considerable work as regards the preparation of implementation, including cost assessments.

Although some new legislation was adopted in the field of water, Lithuania needs to speed up transposition. Monitoring and implementation should be stepped up, in particular for the Directives relating to dangerous substances in surface water. Depending on the results of studies, appropriate measures may need to be taken to bring fluoride levels in drinking water in line with EC requirements.

4.1.2.4 Poland

Poland applied for EU Accession in 1994 and began negotiating its full membership in 1998.

In the 2001 'Report on Progress towards Accession' the Commission states that in the field of environment: With regard to the integration of the environment into other policies, Poland has approved the 2nd National Environmental Policy. The revised National Environmental Policy will establish clear objectives and targets for Poland's environmental policy. The National Environmental Policy is to be completed by an Action Programme for each sector (air, water, waste). It incorporates the principles of the EU 5th and 6th Environmental Action Programmes. As regards integration, Poland has adopted the strategy for sustainable development: "Poland 2025 – Long-term Strategy for Permanent and Sustainable Development". This will provide guidelines for all sectoral policies to ensure their respect of the environment and orient them towards a sustainable approach.

In the field of water quality, the Act on Water has now been adopted. The Act on Collective Water Supply and Sewage Discharges has been adopted by Parliament. The Act partially transposes the directives on drinking water and on urban wastewater treatment. To complete transposition of the *acquis* in this sector, ministerial regulations need to be issued on the basis of the laws now adopted. In addition, the Act on Environmental Protection has been adopted. The Act transposes some requirements of the water framework directive. The Polish Government has decided to identify the whole territory of the country as being within the catchment area of sensitive waters under the terms of the directive on urban wastewater treatment. Moreover, Poland has initiated a pilot river basin management (on the river Narew) in view of the water framework directive.

Poland has achieved considerable alignment with the EC environmental *acquis*. Poland has also prepared the necessary implementation programmes in the field of air, waste, water and industrial pollution, but the monitoring infrastructure and equipment still needs to be up-graded and modernised. There is a need to improve the co-ordination of monitoring and reporting procedures and to use monitoring data more efficiently for the allocation of permits and inspection.

4.2. CO-OPERATION IN THE BALTIC SEA AREA

On a regional level, concern for the environment has led to the establishment of new groupings. The main actors in the field of the Baltic Sea protection are:

4.2.1. HELCOM

On a regional level, concern for the environment and the growing awareness that national measures alone were not sufficient to protect this highly sensitive marine environment led the countries of the Baltic Area to adopt the Helsinki Convention.

The first Convention on the Protection of the Marine Environment of the Baltic Sea Area, was signed in Helsinki in 1974 by the coastal states of the Baltic Sea at that time: Denmark, Finland, GDR, Federal Republic of Germany, Poland, Sweden and Soviet Union. The 1974 Convention was the first international agreement to take into account all aspects of marine environment protection.

The Convention aimed to prevent pollution from ships (including dumping), pollution from land-based sources, and pollution resulting from the exploration and exploitation of the seabed and its subsoil. The Convention also regulated the co-operation to combat marine pollution by oil and other harmful substances⁸. In 1992, a new Convention that entered into force on the 17th of January 2000, was signed by all the countries bordering on the Baltic Sea (Germany, Estonia, Finland, Denmark, Latvia, Lithuania, Norway, Poland, Russia, Sweden, Czech and Slovak Republics) and by the European Economic Community.

⁸ "Clean Seas Guide", HELCOM

The governing body of the Convention is the Helsinki Commission – Baltic Marine Environment Protection Commission – also known as HELCOM. HELCOM adopts recommendations to be incorporated in the national legislation of the member countries, launches international programmes and projects and carries out assessments concerning the Baltic Sea area.

From a legal point of view, HELCOM Recommendations are "soft law"; they are not binding. In practice, the successful implementation of HELCOM Recommendations depends on the national environmental priorities of each Contracting Party, and the availability of the necessary financial and technical resources.

One of the main achievements of the Helsinki Commission in its early years was the development of the system of scientific, technological and administrative co-operation in the region, in most cases starting from scratch as at that time no international pollution prevention framework existed, except for shipping under the 1973 MARPOL Convention.

4.2.1.1 Joint Comprehensive Program

Under the HELCOM activities, the Baltic Sea Joint Comprehensive Environmental Action Programme (JCP) was approved by the ministers of the environment in 1992.

It is a twenty-year (1993-2012) programme to prevent and eliminate pollution, mainly from municipal and industrial sources, and promote the ecological restoration of the Baltic Sea. Programme includes policies, laws and regulations, institutional strengthening, investment activities, management programmes for coastal lagoons and wetlands, applied research, public awareness and environmental education.

4.2.2. COUNCIL OF THE BALTIC SEA STATES

The Council consists of the Ministers for Foreign Affairs of Denmark, Estonia, Finland, Germany, Iceland, Latvia, Lithuania, Norway, Poland, Russia, Sweden and a member of the European Commission. It was established by the Copenhagen Declaration adopted by member states in March 1992. Chairmanship of the Council rotates on an annual basis.

The Ministers agreed that The Council of the Baltic Sea States should serve as an overall regional forum focusing on needs for intensified co-operation and co-ordination among the Baltic Sea States. The aim of the co-operation should be to achieve a genuinely democratic development in the Baltic Sea region, a greater unity between the member countries and to secure a favourable economic development.

The CBSS' Action Programmes represent a step forward for the Baltic Sea co-operation and comprise also the field of the Baltic Sea environment.

4.2.2.1 Baltic 21 Program

Agenda 21 came into being during the first Earth Summit, the United Nations Conference on Environment and Development (UNCED) held in Rio de Janeiro in 1992.

The Baltic Agenda 21 was adopted by the CBSS (Council of the Baltic Sea States) in June 1998 as a local Agenda 21 for the Baltic Sea area.

It is a regional action programme for sustainable development, focusing on agriculture, energy, fisheries, forests, industry, tourism and transport.

4.2.3. OTHERS⁹:

There are other actors playing a significant role in co-operation in the Baltic Sea area.

4.2.3.1 Intergovernmental Organizations:

Baltic Environmental Forum (BEF) and International Baltic Sea Fishery Commission (IBSFC).

⁹ Baltic 21 Network, <http://www.ee/baltic21/>

4.2.3.2 *Non-governmental Organizations, Networks, Initiatives, Info Gateways:*

Ballad, Ballerina, Baltic Ports Organisation (BPO), Baltic Sea Alliance Interactive Data Workshop, Baltic Sea State Sub-regional Co-operation (BSSSC), Coalition Clean Baltic (CCB), European Union for Coastal Conservation (EUCC), International Council for Local Environmental Initiatives (ICLEI), International Network for Environmental Management (INEM), World Wide Fund for Nature (WWF).

There are also important actors in education and public awareness.

5. THE STATE OF THE BALTIC MARINE ENVIRONMENT TODAY

The “4th Periodic Assessment of the State of the Marine Environment of the Baltic Sea, 1994-1998”, elaborated by no less than 150 scientists from the entire Baltic Sea region and presented by the Helsinki Commission on March 22, 2001, reported¹⁰ that:

In general, the water quality in coastal areas has improved since the end of 1980 due to joint international measures taken. In fact, billions of EURO were invested into wastewater treatment plants by the countries bordering the Baltic Sea.

The formerly so serious DDT pollution has been defused and the level of DDT in the marine environment cut down by over 90%. Over the past 20-25 years, the levels of other contaminants like mercury and lead have also diminished, benefiting the health of many birds of prey and mammals. The white tailed sea eagle is reported to reproduce as successfully as before 1950. Another success story features a black and white seabird called guillemot, which in the mid 1990s once again has been able to produce eggs with shells as thick and solid as 25 years ago.

The concentration of PCBs in the marine environment has not continued to drop in the 1990s, although production has stopped in all countries bordering the Baltic Sea. Levels of PCBs and dioxins in the food chain are still high. Many female seals are still unable to produce pups, because these substances are affecting their wombs. The main source of dioxin is uncontrolled burning of waste containing plastics, for example.

Good news is that the phosphorus loading has been curbed in many areas since the end of the 1980s thanks to improved sewage and wastewater treatment. However, the water in the Baltic Sea is generally less transparent than it was fifty years ago, still indicating nutrient overload. Therefore, both nitrogen and phosphorus inputs need to be cut down further to combat eutrophication. However, some sources of nutrients are tricky to control, because they are diffuse, like fertilised farmlands and exhaust fumes of millions of cars, trucks, busses and ships cruising the Baltic Sea region.

The concentrations of most heavy metals measured in organisms living in the Baltic Sea are stable at low background concentrations or even decreasing. Cadmium, however, is an exception. But why in the 1990s cadmium levels climbed in herring roaming the central Baltic Sea is yet unclear. Improper dumping grounds might be a source for the continuous input of those hazardous substances.

A growing number of unknown chemical contaminants raise new concern. Between 1988-1998, Baltic fish were found to produce two to three times more detoxifying enzymes than before. Their immunity system must have been fighting yet unidentified toxic substances, since the levels of contaminants known to trigger the enzyme production have been brought down.

¹⁰ Press Release "A Bridge between Science and Politics – the new Baltic Sea Status Report of the Helsinki Commission now available", 22 March 2001, www.helcom.fi

Fish populations in the Baltic Sea are also strained by commercial fishery. Cod, herring, salmon and eel fishery are presently unsustainable in the Baltic Sea. Over-fishing is the common practise, which leads to exploitation of the stocks beyond safe biological limits. Other threats are man-made obstacles, loss of spawning grounds and by-catches. Cod populations, for example, are declining rapidly due to overexploitation and environmental degradation. Another commercial fish, the Baltic wild salmon, even faces extinction. Wild salmon accounted for only 8% of the population in 1998 as compared to 14% in 1994. This is partly due to mass rearing of salmon in hatcheries, which with time lowers the genetic variability of the hatchlings. After they are released to the wild, they mix with wild salmon and can make the wild salmon population more sensitive to diseases.

Ignoring existing law, shipping continues to discharge wastes illegally into the Baltic Sea. The number of oil slicks has not dropped significantly. To improve the situation, since last year all ships are obliged to deliver all wastes before leaving a Baltic port.

In summary this assessment shows that the endeavours already undertaken by the Baltic Sea states are going in the right direction. However, their efforts need to be continued and further intensified. This also includes the protection of the marine environment against problems emerging from economic growth in the Baltic Sea states.

6. CONCLUSIONS

The east enlargement of the European Union (EU) presents a unique opportunity to reunite the European continent, to ensure its prosperity, democracy, stability and peace, to enlarge the EU internal market and to give a new chance to the people from the East for a better and secure life.

One of the most exciting challenges of this enlargement is ensuring that the environmental protection in the new members will be at least as high as in the old members. This challenge is high because of the negligence of the environmental problems in Central and Eastern Europe in the past and the large gap in the level of environmental protection between CEE and the Union.

As a shared water resource, the Baltic Sea will be one of the first beneficiaries of this challenge.

In the light of the 4th Periodic Assessment of the Helsinki Commission, the governing body of the Convention on the Protection of the Marine Environment of the Baltic Sea signed in Helsinki by the countries of the Baltic Area, we have seen that the state of the Baltic Sea has a positive trend, but has still to be improved.

Main priorities are: the further reduction and phasing out of hazardous substances, the environmental impacts of fishery and the reduction of the nitrogen input of ships (makes up 12-20 % of the total nitrogen deposition).

To achieve these further goals the Helsinki Commission will focus on an integrated coastal zone management system to protect the marine environment, conserve natural resources and ensure sustainable development. Furthermore, the Baltic Sea states – especially those who are in the EU accession process – will have to be supported in implementing the European Water Framework Directive in the coastal area with regard to water quality and monitoring.

The personal, organisational and financial capacities of the Baltic Sea states are to be strengthened to intensify the efficient implementation of the decisions taken by the Helsinki Commission. This includes the development of new funding mechanisms and the involvement of public private partnership.

Co-operation must be built on confidence, commitment and a common understanding of the situation. Development of bilateral and trilateral agreements of co-operation between countries sharing a water area, the elaboration of joint river basin management plans, the establishment of joint water commissions and improved co-ordination of the national environmental monitoring programmes and of the management of environmental information are required.

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Nicole Reiser

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