Baltic Sea Hot Spots - Hazards and Possibilities for the Baltic Sea Region

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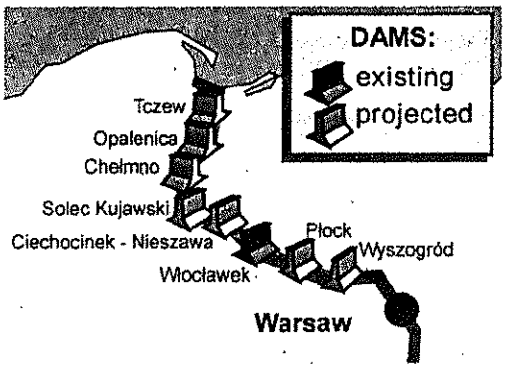
36. NEW DAM ON VISTULA RIVER

Vistula River is one of the largest rivers in Europe. It flows into the Baltic Sea at the Gulf of Gdansk. Between the middle and lower courses of the river, at Wloclawek, a large dam is located. The dam was built over 30 years ago and was designed to form a part of a series of dams. Over 30 years, the untreated waste, which includes untreated industrial and chemical waste from places such as Silesia and Plock, has settled in the sediments behind the reservoir. These sediments are highly toxic. The dam has been used for peak and emergency power. The Polish government and parliament intends to build the next dam downstream of Wloclawek, at the place called Nieszawa. Regrettably, even the Environmental Minister is in favour of the project. Many scientists and organisations however, object this intention, argumenting that problems cannot be solved by building a new dam and that the solutions for the old dam must be worked out first.



37. WASTEWATER MANAGEMENT WITHIN THE VISTULA LAGOON AND ITS DIRECT CATCHMENT

Vistula Lagoon is located in the Southeast of the Polish coast, by the border with Kaliningrad District (Russia). Its area is determined by the Vistula Mierzeja and Sambia Peninsula. Total area of the Lagoon is 838 km², of which 328 km² are located on the Polish side. Average depth of the lagoon is 2.6 m, while the deepest place is 5.1 m.

Direct catchment of the Lagoon is determined by catchments of thirteen rivers, the largest of which are Pasleka, Elblag and Nogat. Actually, these three rivers are the biggest contributors carrying pollutants to the Lagoon. Thus, ecological conditions of the Vistula Lagoon shall be considered in aspect of rivers flowing into the Lagoon. In the case of Pasleka River (the longest river flowing into the Lagoon) there are ca 15 facilities discharging waste directly into the river. These include several industrial plants, wastewater treatment plants and a hospital.

Along the second longest river Elblag, there are six plants discharging their waste into the river, including two wastewater treatment plants, diary, combined heat and power plant. Besides that, the Lagoon receives direct discharges from six sources - four mechanical and mechanical-biological wastewater treatment plants located in Krynica Morska, Frombork, Piaski and Tolkmicko, untreated waste from fish processing plant in Tolkmicko and mechanically treated waste from fruits' and vegetables' processing plant.

Analysis of the data concerning environmental conditions of the Lagoon discloses that Pasleka and Elblag Rivers are the main contributors of high loads of COD, BOD5, phosphorus and nitrogen. The respective data from 1995-1996 and 1999 are as follows:

	1996		1999	
	COD [t/year]	BOD_5 [t/year]	COD [t/year]	BOD_5 [t/year]
Pasleka	18171	2440,4	14790,4	1954,4
Elblag	9465,2	1293,4	10794,2	938,4

Comparison of the data reveals improvement of the parameters throughout the three-year period. Comparing the data from 1996 and 1999, the load of total phosphorus has decreased while total nitrogen has increased:

	1996		1999	
	total P [t/year]	total N [t/year]	total P [t/year]	total N [t/year]
Pasleka	142,6	1584,6	132,1	1362,8
Elblag	89,49	840,7	86,8	970,9

In 1998, Pasleka river suffered from excessive concentration of faecal bacteria E. coli and biogenesis causing eutrophication of the water. However, the concentration of organic and other specific substances allowed classifying the river as a second purity class river. Generally, the research performed in 1998 reveals that the bacteriological conditions of the Vistula Lagoon is acceptable, oxygen concentrations are also good and do not constraint biocenosis development.

Remarkable positive changes took place throughout the 3-year reporting period, due to the decrease in application of artificial fertilisers and development of the biological wastewater treatment plants. Character of the Lagoon provides many possibilities for the sustainable tourism development. Thus, more efforts shall be put for further improvement of the water conditions. These can be accomplished through the development of sustainable tourism, which can be more beneficial, as the region of Warmia-Mazury still belongs to the areas untouched by industry. Also the construction of wastewater treatment plants, covering the needs of all the communities inhabiting the direct catchment of Vistula Lagoon, would highly benefit from its environmental conditions. Development of organic agriculture would further contribute to the decrease in the concentration of harmful organic substances, such as DDE, DDT and gamma-HCH, the increase of which was notified in 1999. In addition, bilateral actions for the protection of the Lagoon shall be initiated by the governments of the Republic of Poland and Russian Federation.