

Baltic Sea Environment Program. Pre-Feasibility Study of the Kaliningrad Region, Russia

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In autumn 1990, the Ministers of the Environment from the countries bordering the Baltic Sea signed a declaration with the objective of restoring the ecological balance in the Baltic Sea. To achieve the objectives an environmental action program based on several pre-feasibility studies was elaborated. This paper presents the findings of the pre-feasibility study of the Kaliningrad region in Russia.

The Kaliningrad region is situated between Lithuania and Poland and is an isolated part of Russia. The region has a territory of about 15,100 km² with a population of about 800,000. Industry is well developed (pulp and paper mills), as are agriculture, fisheries, and tourism.

Environmental data show that all water courses in the region have high concentrations of nutrient and organic matter which cause excessive algal growth and reduced oxygen concentrations. The sampling program undertaken as part of the study, indicates small discharges of heavy metals, but the concentration of micro-pollutants, especially of PCBs, is a cause for major concern.

There are approximately 200 major water pollution enterprises in the region. Few of these have installed effluent treatment plants, and most of the process water is discharged with little or no treatment. The main cities in the region, all have insufficient sewage treatment facilities. The largest source to water pollution is the four pulp and paper mills. The discharges from these mills correspond to about 60 percent of the annual BOD loading and 50 percent of the nitrogen loading. The total load of nutrients from the Kaliningrad region into the Baltic Sea, is about 2,600 tonnes of phosphorus and 36,500 tonnes of nitrogen. These figures differ considerably from the officially reported loading figures.

The study identified 18 major sources of water pollution, including four sewage treatment plants, four pulp and paper processing plants, food industry, metallurgical industry, landfills and harbor areas. Based on more detailed analysis seven of these sources were ranked as the most critical pollution hot spots and subsequently included in the action program for the Baltic Sea. For each source measures were proposed to reduce the amount of pollutants being discharged to the Baltic Sea.

Implementation of the action program will reduce the annual load of phosphorus to the Baltic Sea by about 1,700 tonnes, or 66 percent, of the total loading. The annual load of nitrogen will be reduced by about 14,000 tonnes, or 38 percent of the total loading. The cost of the proposed action program is about NOK 2 billion (US\$ 270 million).

As proposed the program will come close to achieving the objectives of the Baltic Sea program in the Kaliningrad region. To reduce the load of nitrogen to fully meet the objectives, action has to be taken on the use of fertilizer and manure in the agricultural sector, and nitrogen removal has to be implemented at the largest sewage treatment plant (city of Kaliningrad).