Management of dredged material from Szczecin Lagoon – PL/DE

1. Policy Objective & Theme

- ADAPTATION TO RISK: Preparing for, preventing and managing natural hazards and technological (human-made) hazards

2. Key approaches

- Integration
- Planning
- Knowledge-based
- Technical

3. Experiences that can be exchanged

Harmonization of national legislation for the regulation of management of dredged material is crucial for the trans-boundary environmental co-operation in the Szczecin Lagoon. Previous measures aimed at improving the environmental conditions of the Lagoon basin (environmental investments) and a strong interest of the units responsible for planning, advice on and execution of dredging works show wide support for such an initiative.

4. Overview of the case

The trans-boundary waters of the Szczecin Lagoon and Pomeranian Bay on both sides of the Polish-German border are the area of dredging works and investments in hydraulic engineering which result in producing dredged spoil requiring the appropriate use or management. Generally, dredging works are carried out in three cases:

- Capital dredging – for navigation, for engineering purposes, or removal of overburden for aggregate extraction;
- Maintenance dredging - to ensure that channels, berths or construction works are maintained at their designed dimensions;
- Clean-up dredging - deliberate removal of contaminated material from the marine environment.

In the Szczecin Lagoon area the main site of carrying out such work is the fairway Szczecin-Swinoujscie, where the ongoing dredging works are performed to maintain the nautical depth for seagoing ships. A number of investments in water engineering were made due to plans for extensive expansion of ports and marinas in the Polish part of the site, which will result in considerable amount of (usually contaminated) dredging spoils remaining to be used. Also, the natural phenomena such as floods or storms can cause re-suspension of harmful suspension into the water column which results in environmental hazards.

Both Poland and Germany observe certain regulations with relevant provisions governing the mode, range and test methods used for extracting sediment, which determine the subsequent handling of silt material. At international level, the Baltic Sea area is subject to the arrangements and recommendations of the Helsinki Commission (HELCOM) and a number of EU rules. Due to differences in national legal regulations, there are serious obstacles as for the interpretation of the bottom sediments test results carried out in Poland and Germany, and thus in determining the cross-border impact of hydraulic engineering investments in the hydro-environment.

The proposed project is to analyze the legal regulations and practices concerning the evaluation of the degree of sediment contamination in Polish and German transit waters, and to develop a proposal for solutions unifying the future cooperation in this field.

5. Context and Objectives

a) Context

Prevention of natural hazards and risks caused by human activity is possible after their unequivocal identification.

In 2007, the Helsinki Commission issued recommendations which the Baltic Sea countries should consider the development of national rules for the assessment of pollution and handling of silt material (HELCOM, 2007). HELCOM Recommendations (2007) are complex and precise and way of determining both the degree of sediment contamination and the decision-making procedures for the handling of dredged material, as well as give guidelines for environmental monitoring. Decisions regarding the handling of dredged material from dredging (mainly the storage capacity for the dump-site) should be taken on the basis of the so-called Action List. The criteria should reflect experience gained relating to the potential effects on human health or the marine environment. Action List levels (upper and lower level) should be set on the basis of concentration limits, biological responses, environmental quality standards, flux considerations or other reference values:

- Material, which contains specified contaminants or which causes biological responses, exceeding the upper level generally should not be dumped.
- Material of intermediate quality below the upper level but exceeding the lower level, requires more detailed assessment before suitability for disposal at sea can be determined.
- Material below the lower levels should generally be considered of little environmental concern for disposal at sea.

In Germany, the rules of the sea water silt material treatment are specified in HABAK-WSV (1999). In their principles, these provisions correspond to the recommendations of HELCOM (2007) clarifying the scope of research, both in terms of geochemical and biotic sediment testing. The limits for most pollutants are defined at two levels of concentration (the lower and upper). Evaluation of the harmfulness of the sediment, and thus decisions about the procedure for dealing with silt material will be taken following a thorough analysis of all the factors examined (physical, geochemical and biotic).

In Poland, there is only one regulation by the Minister of the Environment (Reg. Min. Envir., 2002), both for the assessment of sediment pollution of inland water reservoirs, rivers, seas and transit in the Baltic Sea. It sets out the individual threshold values for selected substances. Even in a single case of harmful substances exceeding a threshold, the dredging spoil should be classified as waste, which implies a serious reduction in the possibilities of underwater silt material re-deposition or management. On the other hand, the cited regulation recommends conducting the geochemical analysis of trace elements after disintegration of samples in less reactive, four-times diluted hydrochloric acid, and not - as is practiced in Germany (and ISO- recommended)- in the much more reactive aqua regia. This difference in analytical procedures may lead to entirely different marking of harmful substances in the same sediments. A serious shortcoming in the Polish regulation is taking into consideration only those substances that are cited in the document by the name - there is no provision to extend the list of harmful substances by other compounds, which may have important implications for sediment pollution locally.

Another discrepancy in the laboratory techniques used in both countries is to conduct measurements of heavy metals for different sediment fractions. In Poland, the fraction of the total content of the sediment is measured, while in Germany, markings are made for grain size <20 microns, where heavy metals can be recursively concentrated. For the same fraction, limits for harmful substances have been set in Germany (as recommended by HELCOM - the "upper" and "bottom" value), while in Poland the threshold values (in this case single level) were determined for a total fraction.

b) Objectives

The proposed task is to prepare and conduct a campaign (preceded by a thorough analysis of the legislation) that will help lead to a revision of the assessment of the contamination of sediments. Since German regulations are drafted in a way compliant with the recommendations of HELCOM (2007), the main emphasis should be placed on the modification of the Polish legislation.

The next target should be a broad exchange of experiences and results of the research papers if they may have impact on neighboring parts of the cross-border basin. Such actions should focus primarily on the principle of informing the partner about first-time detection of pollutants in the reservoir ecosystem.

Should there be a need to manage the contaminated silt material as waste, either disposal and treatment technologies or the availability of suitable landfill are necessary for this type of waste. Waste management is the responsibility of state and local administration, and they are expected to propose solutions regarding this matter. One of the objectives of the project should be to incorporate waste silt material into the Polish waste management plans (which has not taken place so far).

6. Implementation of the ICZM Approach (i.e. management, tools, resources)

a) Management

A common policy on transitional waters management in cross-border areas and the protection of natural assets and resources (both biotic and abiotic) in accordance with the principles of sustainable development requires the unification of research standards and regulations governing the basic decisions of economic, social and environmental impact. The huge role of the Oder mouth area ecosystem together with areas under legal protection on both sides of the border, as well as the tourism and economic development plans (transportation, fishery management) require close and constant cooperation of both Polish and German organizations and agencies. Appropriate policies must take into account the areas of Natura 2000: The Szczecin Lagoon (PLB 320009) and other Natura areas surrounding the reservoir.

b) ICZM tool

The existing cross-border cooperation between the states in the Lagoon region has taken place both at the level of public administration institutions and NGOs. The legal basis in the field of Polish-German cooperation was the agreement signed in 1992 between the Republic of Poland and the Federal Republic of Germany on cooperation in the field of water management of boundary waters.

In 1996, an agreement was signed to establish the International Commission on the Protection of the Oder against Pollution (ICPO). The agreement was concluded between the governments of the Poland, Czech Republic, Germany and the European Community. The objectives of the ICPO are:

1. to prevent the pollution of the Oder and the Baltic Sea by contaminants and to achieve a reduction in the pollution thereof;
2. to achieve the most natural aquatic and littoral ecosystems possible with the corresponding species diversity;
3. to permit utilisation of the Oder, in particular the production of drinking water from bank filtrate and the use of its water and sediments in agriculture;
4. to provide for precautions against the risk of flood damage and achieve a sustained reduction thereof; and
5. to coordinate implementation of the Water Framework Directive in the Oder river basin.

At the beginning of 2000 Regional Agenda 21for Szczecin Lagoon was established on the basis of several agreements between the West Pomeranian (Poland) district and Land Mecklenburg - Western Pomerania (Germany).. Its main purpose is to act for comprehensive sustainable development, whose task is the leading the Region’s community towards sustainability. Coordination of the activities was entrusted to the Joint Committee on Environmental Protection (WKOŚ).

In the mid-90s of the last century Euroregion Pomerania was established. It comprises the regions of three countries: Germany, Sweden and Poland. The aim of the cooperation is "to take joint actions for equitable and sustainable development of the region, and aligning the people and institutions on both sides of the border." Polish and German state services work together on daily basis in Pomerania Euroregion.

7. Cost and resources

Complete costing is not available

8. Effectiveness (i.e. were the foreseen goals/objectives of the work reached?)

The effectiveness of the intended project will depend on the support of communities interested in changing the regulations. In the current legal circumstances, an efficient office action and decision-making bodies of contractors is difficult due to imperfect legislation. A broad information campaign addressed to the units concerned should be of significant help in gaining supporters of change and project implementation. The trans-boundary environmental impact of hydraulic engineering investments carried out in the reservoir make the problem more significant.

9. Success and Fail factors

Modification of the rules inconsistent with the HELCOM Recommendations is necessary for the effective performance of the project. Similar actions simultaneously run by other party, with little publicity, but more advanced in the legislation process, may be a potential threat to the project. The potential failure may also be related to the reluctance of state services responsible for the state of affairs, who may insist on the validity of current solutions.

10. Unforeseen outcomes

None as yet

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13. Sources

HABAK-WSV, 1999: Directive for Dredged Material Management in Federal Coastal Waterways (HABAK-WSV), Second Revised Edition. BfG-No. 1100.
HELCOM, 2007: Guidelines for the Disposal of Dredged Material at Sea - Adopted in June 2007 – and Form for Reporting on Disposal of Dredged Material at Sea - Approved by HELCOM MONAS 9 in October 2006. Helsinki.
Reg. Min. Envir., 2002: Rozporządzenie Ministra Środowiska w sprawie rodzajów oraz stężeń substancji, które powodują, że urobek jest zanieczyszczony, Dz. U. 55 poz. 498)

14. Relevance for cross-border management of transitional waters

Szczecin Lagoon is a good example of a cross-border transitional water body where the reinforcement of the environmental integrity requires close trans-boundary cooperation of stakeholders on various tiers. Harmonization of national legislation for the regulation of management of dredged material is crucial for the trans-boundary environmental co-operation in the Szczecin Lagoon. Therefore, the case study is highly relevant for cross-border management of transitional waters regarding implementation of WFD in a trans-boundary framework.