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Annex 3

HELCOM Programme Implementation Task Force (HELCOM PITF)

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HELCOM PROGRAMME IMPLEMENTATION TASK FORCE (HELCOM PITF)

CRITERIA FOR INCLUSION AND DELETION OF HOT SPOTS:

PROCEDURES AND GUIDELINES FOR INCLUSION AND DELETION OF HOT SPOTS

Introduction

Overview

This document is advisory in nature and has been prepared by the Helsinki Commission (HELCOM) Programme Implementation Task Force (PITF) to provide to the co-operating countries with criteria, in the form of procedures and guidelines, to be used when they wish to propose to the PITF that a hot spot be included or deleted from the list in the Baltic Sea Joint Comprehensive Environmental Action Programme (JCP). The JCP, issued in 1992 and updated in 1998, provides a framework for implementation of preventive and curative measures for the "restoration of the ecological balance" of the Baltic Sea. The strategy of the JCP is to reduce pollution loads entering the coastal and marine environment by undertaking a phased series of complementary actions throughout the entire drainage basin of the Baltic Sea. This long-term series of interventions is intended to reduce the cumulative pollution loads from existing point and non-point sources, promote measures to avoid creation of new sources of pollution, and support measures to maintain and restore the integrity of coastal lagoons and wetland ecosystems. The update issued in 1998 reviewed progress in Programme implementation and identified a limited number of emerging issues that will require action.

Inclusion and Deletion of Hot Spots

A major focus of the JCP is to support measures to bring about a decisive reduction of pollution to the Baltic Sea from land-based sources. This is consistent with the provisions of the Helsinki Convention which mandate the Contracting Parties to: "…take all appropriate legislative, administrative or other relevant measures to prevent and eliminate pollution in order to promote the ecological restoration of the Baltic Sea Area and the preservation of its ecological balance." The list of hot spots included in the JCP provides the basis for both investment and management activities under the Programme. During the course of JCP implementation, it has been recognised that it is appropriate to:

(i) include, in a very limited number of cases, new hot spots due to new information made available since the preparation of the JCP;

(ii) consider the deletion of selected individual hot spots when well justified and consistent with the objectives of the JCP; and

(iii) divide existing large hot spots, of all types, to make them more manageable and operational when consistent with the objectives of the JCP.

Costs for addressing environmental management and protection expenditures for new investments which are inconsistent with the provisions of the Helsinki Convention due to inadequate planning

and/or inappropriate permitting decisions should be the full responsibility of the investor, consistent with the polluter pays principle.

These guidelines, prepared in three parts, provide criteria and procedures for inclusion and deletion of:

(i) point source municipal and industrial hot spots;
(ii) non-point source agricultural hot spots; and
(iii) coastal lagoon and wetland hot spots, which include selected coastal areas.

PART I Municipal and Industrial Point Source Hot Spots

1.1 Procedure for Including New Municipal and Industrial Point Source Hot Spots

General procedures for including new municipal and industrial point source hot spots are outlined in Table 1. Steps 1 and 2 are considered to be of primary importance. More specific considerations for inclusion of municipal and industrial hot spots are provided in sections 1.2.1 and 1.2.2 on Source-specific Considerations.

Table 1. General Procedures for Including New Municipal and Industrial Hot Spots

Step 1 **Quantify the site's threat and impact on the Baltic Sea**	Considerations: (i) High and/or significant amounts of polluting substances are released via rivers or directly from the site to the Baltic Sea marine and coastal waters including wetlands, lagoons and semi-enclosed basins; or (ii) The emissions contribute considerably to an impact or threaten Baltic Sea marine and coastal ecosystems, including wetlands, lagoons and semi-enclosed basins. In assessing the threat and impact, special attention should be given to: * Specially protected and other vulnerable areas, including spawning and nursery grounds (the aim is to protect these areas); * Highly polluted areas (the aim is to improve the quality of these areas); and * Highly polluted rivers (the aim is to identify the main sources of pollution and to reduce it).
Step 2 **Check the compliance of the site with Annexes of the Helsinki Convention, relevant HELCOM Recommendations and other relevant international agreements**	Considerations: The site is significantly out of compliance with Annexes of the Helsinki Convention and relevant HELCOM Recommendations, or other international agreements relevant to countries in the Baltic Sea catchment area, if HELCOM Recommendations are not available and/or applicable.
Step 3 **Develop an initial analysis of the specific site and source(s) to be addressed, remediation costs, and clean-up goals**	Considerations: The pollution problem can be reduced by specified technical measures, in an outlined time frame and with specified reduction goals, by taking cost-effective approaches with regard to the impact on the Baltic Sea marine and coastal ecosystem, including semi-enclosed basins. Also, the site can be clearly defined with regard to the geographical area of the site and source(s) to be addressed.

1.2 Source-specific Considerations for Inclusion of Municipal and Industrial Hot Spots

These source-specific considerations are meant to follow the general procedures outlined in Section 1.1.

1.2.1 Considerations for Inclusion of Municipal Hot Spots

The municipal system is found to exhibit one or more of the following characteristics:

(i) the system discharges high and/or significant amounts of phosphorus, nitrogen and organic matter and/or the wastewater treatment plant continuously discharges high amounts of chlorinated compounds due to the application of chlorine for disinfection of wastewater;

(ii) the municipal wastewater collection and treatment system includes high and/or significant industrial loading of hazardous substances which are not efficiently treated within the wastewater treatment plant and/or affect the efficiency of the treatment process;

(iii) the municipal discharge significantly affects recreational use, coastal fish spawning and nursing grounds, other marine species and the use of fish for consumption by discharging oil, hazardous substances and/or bacteria;

(iv) a leaking sewer network or overflow of the wastewater treatment plant results in high and/or significant discharges of phosphorous, nitrogen and/or hazardous substances; and/or

(v) municipal sludge handling and disposal is done in a way that results in high and/or significant discharges of phosphorous, nitrogen and/or hazardous substances.

1.2.2 Considerations for Inclusion of Industrial Hot Spots

The industrial site is found to exhibit one or more of the following characteristics:

(i) the individual facility or a complex of facilities discharges to the air or water high and/or significant amounts of hazardous substances, phosphorus, nitrogen and/or organic matter;

(ii) the individual facility or a complex of facilities discharges high and/or significant amounts of salts;

(iii) the discharges and/or emissions from the facility, in the form of oil, hazardous substances, turbidity and siltation and/or thermal effects; significantly affect recreational use, coastal fish spawning and nursing grounds, other marine species or the use of fish for consumption;

(iv) a leaking sewer network or overflow of the industrial wastewater treatment plant results in high and/or significant discharges of phosphorous, nitrogen and/or hazardous substances;

(v) soil contamination at the facility results in high and/or significant discharges of phosphorous, nitrogen and/or hazardous substances; and/or

(vi) industrial sludge handling and disposal is done in a way that results in high and/or significant discharges of phosphorous, nitrogen and/or hazardous substances.

1.3 Procedures for Deleting Municipal and Industrial Point Source Hot Spots

Standardisation of the deletion process for municipal and industrial hot spots is also useful as a way to help prioritise and implement hot spot remediation efforts. The aim should be to develop high, yet attainable, goals for countries to meet in order to remove hot spots from the list.

Countries may subdivide major municipal, industrial and agricultural hot spots to make them more manageable and operational when consistent with the objectives of the JCP.

General procedures for deleting hot spots are outlined in Table 2. More specific considerations for municipal and industrial hot spot deletions are included in sections 1.4.1 and 1.4.2 - Source-specific Considerations.

Table 2. General Procedures for Municipal and Industrial Hot Spot Deletion

Step 1	Considerations:
Quantify pollutant loadings and downstream water quality	The site is no longer the source of high and/or significant amounts of polluting substances via rivers or directly from the site to Baltic Sea marine and coastal waters, including wetlands, lagoons and semi-enclosed basins.
Step 2	Considerations:
Compare monitoring results against relevant HELCOM Recommendations and Annexes or other relevant international agreements	The site is consistent with Annexes of the Helsinki Convention, and relevant HELCOM Recommendations, or other international agreements relevant to countries in the Baltic Sea catchment area, if HELCOM Recommendations are not available and/or applicable.
Step 3	Considerations:
Assess site clean-up effects and monitoring programmes	Site clean-up efforts have attained planned objectives, pollution load reductions have been achieved, and an appropriate monitoring programme has been established.

The implementation of BAT and/or BEP may, on a site-specific basis, be considered a sufficient reason for deletion of a hot spot.

Hot spots that have ceased activity are generally covered by the criteria presented in Step 1. The situation should be analysed further before deletion of the hot spot in cases where more releases of pollutants are a possibility, such as in the case of some types of closed industrial sites and mining areas.

1.4 Source-specific Considerations for Deletion of Municipal and Industrial Point Source Hot Spots

These source-specific considerations are meant to follow the general procedures outlined in Section 1.3.

1.4.1 Considerations for Municipal Hot Spot Deletion

The municipal wastewater system has been successfully upgraded, and management improved, as shown by:

(i) in the case of large municipal hot spots, when a programme of action has been implemented in accordance with the objectives of the JCP;

(ii) the sewer systems have been fully established and/or existing ones improved, with leak detection and repair procedures in place, and efforts are being undertaken consistent with a plan of action to meet applicable HELCOM Recommendations in a phased manner; and

(iii) municipal sludge handling and disposal is done in accordance with international requirements.

1.4.2 Considerations for Industrial Hot Spot Deletion

The individual industrial facility or a complex of facilities has successfully met the criteria for deletion, if:

(i) for abandoned facilities, effective decommissioning and site remediation has occurred to minimise contaminated run-off;

(ii) the industrial sewer systems have been fully established and/or existing ones improved, with leak detection and repair procedures in place, and efforts are being undertaken consistent with a plan of action to meet applicable HELCOM Recommendations in a phased manner; and/or

(iii) industrial sludge handling and disposal is done in accordance with international requirements.

PART II Agricultural Non-Point Source Hot Spots

2.1 Procedure for Including New Agricultural Non-Point Source Hot Spots

The development and adoption of new agricultural policies and practices, potential revival of older input-intensive agriculture and increases in livestock production could create site-specific situations in the Baltic Sea Region which would result in a need to consider new agricultural non-point source hot spots. In undertaking activities in this area, special reference should be made to Annex III of the Helsinki Convention, which addresses environmental management issues in agriculture.

Table 3. General Procedures for Including New Agricultural Hot Spots

Step 1 **Quantify the site's threat and impact on the Baltic Sea**	Considerations: (i) High and/or significant amounts of polluting substances are released via rivers or directly from the site to Baltic Sea marine and coastal waters, including wetlands, lagoons and semi-enclosed basins; or (ii) The emissions contribute considerably to an impact or threaten Baltic Sea marine and coastal ecosystems, including wetlands, lagoons and semi-enclosed basins; or (iii) The emissions contribute considerably to incremental pollution of the Baltic Sea via rivers, coastal lagoons and wetlands. In assessing the threat and impact, special attention should be given to: * Specially protected and other vulnerable areas, including spawning and nursery grounds (the aim is to protect these areas); * Highly polluted areas (the aim is to improve the quality of these areas); and * Highly polluted rivers (the aim is to identify the main sources of pollution and to reduce it).
Step 2 **Check the compliance of the site with Annexes of the Helsinki Convention, relevant HELCOM Recommendations and other relevant international agreements**	Considerations: The site is significantly out of compliance with Annexes of the Helsinki Convention (especially Annex III) and relevant HELCOM Recommendations, or other international agreements relevant to countries in the Baltic Sea catchment area, if HELCOM Recommendations are not available and/or applicable.
Step 3 **Develop an initial analysis of the management area and estimated levels of non-point source pollution to be addressed, implementation costs, and management requirements**	Considerations: The pollution problem can be addressed by a planned programme of farm level interventions, with an outlined time frame and specified reduction goals, by taking cost-effective approaches with regard to the impact on the Baltic Sea marine and coastal ecosystem, including semi-enclosed basins. It includes a site that can be clearly defined with regard to the geographical area of the site on the basis of either administrative boundaries and/or drainage basin/sub-basin boundaries. The types of interventions undertaken should have a demonstrated ability to lead to long-term reduction in non-point source pollution, on the basis of applied research programmes.

These source-specific considerations are meant to follow the general procedures outlined in Table 3 above. It is anticipated that areas proposed for inclusion as hot spots would not have management plans prepared and under implementation for the control of non-point source pollution from agriculture. The agricultural area or farm should be considered for inclusion as a hot spot, if it is found to exhibit one or more of the following characteristics:

(i) it is a watershed with an animal density higher than [1.5] livestock units per ha or an area with large animal farms with more than 250 livestock units, which cannot demonstrate that fertilisers and manure are adequately stored and applied on an appropriate area and according to official national or regional fertilisation guidelines;

(ii) there is a general lack of implementation of environmentally sound farming practices as described in the provisions of Annex III to the Helsinki Convention; and/or

(iii) it is located in a vulnerable area that requires special measures according to national considerations, which are not fulfilled.

2.2 Considerations for Agricultural Hot Spot Deletion

2.2.1 Overview

General procedures for deleting agricultural hot spots are outlined in Table 4. More specific considerations for agricultural hot spot deletions are included in section 2.2.2 - Criteria for Agricultural Hot Spot Deletion. Two key operational issues have been addressed in the development of procedures for the deletion of agricultural hot spots:

(i) given the large size of the original agricultural hot spots in the JCP, it is recommended that the co-operating countries subdivide the larger drainage basins into smaller management units which can be evaluated on an individual basis for potential deletion following the adoption and funding of management plans or significant changes in land use; and

(ii) recognising the slow response times of interventions for the control of non-point source pollution from agriculture, countries should provide satisfactory information concerning the types of management plans, monitoring programmes, funding commitments and their implementation status, as the basis for deleting an individual management unit.

2.2.2 Criteria for Agricultural Hot Spot Deletion

An agricultural hot spot or subdivision thereof, may be considered for deletion, provided that the hot spot unit has been formally defined by the co-operating government on the basis of administrative and/or drainage basin/sub-basin boundaries, long-term environmental goals are established for the area, and it fulfils the following criteria:

(i) an agricultural non-point source management plan has been prepared, which includes an appropriate monitoring programme, and there is demonstrated funding which will be adequate for a sustained incremental programme of on-farm activities including improved agricultural practices, investments in manure, urine and slurry handling, and the establishment of buffer strips;

(ii) the management plan will result, through a series of phased actions, in all relevant provisions of the Helsinki Convention Annex III being fulfilled;

(iii) farms within a watershed with an animal density higher than [1.5] livestock units per ha or large animal farms with more than 250 livestock units have demonstrated that fertilisers and manure are adequately stored and are applied on an appropriate area and according to official national or regional fertilisation guidelines; and

(iv) if located in a vulnerable area that requires special measures according to national considerations, the management plan will support a series of activities to fulfil these requirements.

Table 4. General Procedures for Agricultural Hot Spot Deletion

Step 1	Considerations:
Quantify pollutant loadings and downstream water quality	Implementation of the management plan for the area would support a series of farm-level interventions that over the medium and long term would result in a high and/or significant reduction of amounts of polluting substances released via rivers or directly to Baltic Sea marine and coastal waters, including wetlands, lagoons and semi-enclosed basins.
Step 2	Considerations:
Compare monitoring results against relevant HELCOM Recommendations and Annexes or other relevant international agreements	The management plan for the area is technically sound and adequately funded to allow for a phased series of farm-level activities that are consistent with Annexes of the Helsinki Convention (especially Annex III), and relevant HELCOM Recommendations, or other international agreements relevant to countries in the Baltic Sea catchment area, if HELCOM Recommendations are not available and/or applicable.
Step 3	Considerations:
Assess management plan, performance indicators and monitoring programme	Assess whether the management plan will fulfil objectives for the reduction of non-point source pollution from agriculture. Review the adequacy of the monitoring programme with regard to information on farm-level interventions and longer-term environmental benefits through pollution load reductions.

PART III Coastal Lagoon and Wetland Hot Spots

3.1 General Considerations

The JCP recognises the critical importance of coastal lagoons and wetlands to the restoration of the "ecological balance" of the Baltic Sea and the need to manage and conserve the coastal zone for public use and environmental benefit. Coastal lagoons and wetlands are often considered as areas of outstanding "natural beauty" which must be conserved as habitat for migrating birds and economically important fish; as nurseries for many species of marine flora and fauna; and as having an important role in filtering pollutants and buffering changes in the hydrological system. These areas are also often intensively exploited for industry, shipping, urbanisation, fishing, aquaculture and tourism. In addition, they often receive large loads of pollutants from municipal, industrial and agricultural sources in the catchment area and are subject to heavy pressures for incremental reclamation and conversion to other types of land use. In the countries in transition, the large-scale economic and land ownership changes associated with adoption of a market economy may result in a need to add new areas to the hot spot list due to emerging development pressures; in other cases, the preparation and funding of area management plans and restoration measures for specific coastal areas can provide the basis for deletion from the list of hot spots.

3.2 Key Parameters for Characterisation of Coastal Ecosystems

The key parameters that should be taken into consideration when dealing with characterisation of coastal ecosystems include the following items: (i) physical/chemical parameters; (ii) biological/ ecological parameters; and (iii) economic, sociological and cultural parameters. Information on the evaluation of these parameters in the context of the work of the PITF is provided in Attachment A. All assessments for the potential inclusion or deletion of hot spots concerning a coastal or marine

area, especially coastal lagoons and wetlands, should take into account the full range of these parameters.

3.3 Procedures for Inclusion of Coastal Lagoon and Wetland Hot Spots

The term “hot spot“ comes into use for a coastal lagoon or wetland, if the potential qualities of the area are considered to be substantial, in terms of biodiversity and landscape, natural resources for human use, and/or the area plays an important role as a buffer for pollution loads and variations in the hydrological cycle, but these aspects are now in a state of deterioration. The general procedure for determining if a given coastal lagoon or wetland should be included as a hot spot is outlined in Table 5.

The procedure has the form of two consecutive steps as illustrated in the left column of the table. For each step, parameters to be taken into consideration are given in the right column of the table:

(i) **First Step.** In the first step, the objective is to determine if the area is subject to significant adverse effects from pollution, habitat conversion or other types of negative impacts. In addition, for the area to be recognised as a hot spot, it must comprise some features of particular interest. The status and trends of development regarding the potential “values” are analysed. An important part of the analysis is an assessment of the development of factors that can contribute to a deterioration of “values,” such as eutrophication and pollution loads, siltation and erosion, and/or land reclamation and drainage. If the analysis shows that the status of the potential “values” is unacceptable and/or the development of the area will lead to a further deterioration of “values” in the coastal zone, then the area is a candidate for inclusion on the list of hot spots.

(ii) **Second Step.** Step 2 aims at an analysis of the management of such areas. With the many and often conflicting interests and activities in these areas, proper management plans are of decisive importance for sustainable development. If the analysis shows that a management plan has not been prepared and/or management is inadequate, then this coastal area, coastal lagoon or wetland is a candidate for inclusion as a hot spot.

3.4 Procedures for Deleting Coastal Lagoon and Wetland Hot Spots

The existence of formally approved management plans, whose implementation is adequately funded, is of decisive importance for sustainable development in coastal zones. Proper management plans should include integration of their objectives into economic development, land use and zoning processes; mandate use of a permitting process for exploitation of physical and biological resources; require adoption of environmental impact assessment and other types of environmental management tools; and require establishment of monitoring programmes for pollution loads and water quality, and use of indicators for the status of flora and fauna. Proper management plans should have available the authority and resources to enforce relevant legislation. National standards and legislation as well as HELCOM Recommendations and other relevant international conventions should be taken into account. The procedure for deletion of coastal lagoon and wetland areas from the list of hot spots is outlined in Table 6. It should be emphasised that clear formulation of a general objective for an area and its integration into an implementable management plan is a prerequisite for carrying out a well-founded evaluation regarding deletion of a coastal zone from the list of hot spots. Only after the completion of such an evaluation will it be possible to assess whether the management framework is sufficient to allow for deletion of an area from the list of hot spots.

Table 5. General Procedures for Including New Coastal Lagoon and Wetland Hot Spots

Step 1 **Analyse status and trends** The coastal area is taken into consideration for inclusion as a hot spot if the analysis concludes that it is of regional importance from a landscape, ecological and/or economic perspective, and that the "qualities" of the coastal zone are substantially deteriorating or are at significant risk	Considerations: (i) Pollution and nutrient loads from: * Municipal sources; * Industrial sources; * Agricultural sources; * Aquacultural sources; have a negative impact on the "qualities" of the coastal area (lagoon, wetlands, etc.). (ii) Water quality is poor and/or decreasing. (iii) Siltation/erosion is accelerated by human activities such as industrialised agriculture or gravel and mineral extraction. (iv) Human activities in the coastal area have a negative impact, such as land reclamation and drainage, habitat conversion, tourism development, traffic or discharge of nutrients and pollutants. (v) Biodiversity and landscape qualities are decreasing. (vi) Resources are not being used in a sustainable manner or are being depleted. (vii) Native ecosystems are potentially threatened by introduction of alien species.
Step 2 **Analyse the Status of the Management Plan and Implementation Experience** The coastal area is taken into consideration for inclusion as a hot spot if the analysis leads to the conclusion that conditions at a site of regional importance from a landscape, ecological and/or economic perspective, could be substantially improved by proper and relevant environmental management	Considerations: (i) No management plan for the area or a management plan that has been formally approved and integrated into the planning process but which is inadequate. (ii) No control through zoning or permitting or insufficient co-ordination of exploitation activities. (iii) No or insufficient plans for pollution prevention and/or abatement measures. (iv) No or insufficient monitoring programme for: * Nutrient and pollution loads * Water quality * Flora and fauna indicator organisms. (v) Lack of conformity with HELCOM Recommendations, or other international agreements relevant to co-operating countries, if HELCOM Recommendations are not available. (vi) Insufficient capacity and/or funding for carrying out environmental management plans and for the enforcement of legislation.

Table 6. General Procedures for Coastal Lagoon and Wetland Hot Spot Deletion

Step 1 **Assess the state of the coastal zone** The coastal area is taken into consideration for deletion as a hot spot if the analysis leads to the conclusion that the qualities of the coastal area are being restored through implementation of a well designed and adequately funded management plan and/or interventions have been made to address or minimise specific threats	Considerations: (i) Pollution and nutrient loads from: * Municipal sources; * Industrial sources; * Agricultural sources; * Aquacultural sources have significantly decreased or have little or no negative impact on the "qualities" of the coastal area. (ii) Water quality is clearly improving and/or good. (iii) Siltation/erosion due to human activities has ceased or is at an acceptable level. (iv) Human activities in the area with a negative impact, such as land reclamation or discharge of nutrients and pollutants, etc. have ceased. (v) Biodiversity and landscape qualities have improved or are re-established. (vi) Procedures are established to control the risks of habitat conversion and degradation. (vii) Use of resources is sustainable. (viii) Native ecosystems are not threatened by introduction of alien species.
Step 2 **Review of Management Plan** The coastal area is taken into consideration for deletion as a hot spot if the analysis leads to the conclusion that the environmental management of the coastal area is adequate to ensure attainment of the stipulated objectives of the management plan and allow for sustainable use	Considerations: (i) Clear general objectives for the area exist, adequate authorities have been established for implementation of the management plan, and adequate funding is available. (ii) Sufficient co-ordination has been established for review, permitting and monitoring of exploitation activities. (iii) Sufficient plans for pollution prevention and abatement measures have been developed, including actions for reduction of eutrophication. (iv) Effective monitoring programmes are established and funded for: * Water quality, including eutrophication trends; * Flora and fauna indicator organisms; * Nutrient and pollution loads. (v) Conformity with HELCOM Recommendations, or other international agreements relevant to the riparian countries, if HELCOM Recommendations are not available. (vi) Sufficient capacity and funding are available for carrying out environmental management plans and for enforcement of legislation.

ATTACHMENT A

KEY PARAMETERS FOR CHARACTERISATION OF BALTIC COASTAL ECOSYSTEMS, INCLUDING COASTAL LAGOONS AND WETLANDS

1. Introduction

The protection, conservation and maintenance of coastal ecosystems in the Baltic Sea Region requires a long-term commitment and recognition that these areas are subject to a wide and complex variety of natural and man-made forces. The series of coastal lagoons and wetlands which border the Baltic Sea have been given special attention in the JCP given their critical role in the maintenance of the "ecological balance" of the Baltic Sea. This attachment is intended to provide the representatives of the co-operating governments, members of the PITF and other interested parties with a brief overview of the key parameters to be examined in the assessment of the quality of coastal ecosystems.

2. Physical/Chemical Parameters

Siltation is a common phenomenon in coastal areas. Silt is transported by rivers to coastal lagoons where it is deposited, and in some cases lagoons can silt up completely. Erosion takes place as a natural process at the shoreline or when natural vegetation is destroyed, exposing the underlying sediment to the prevailing waves and currents. Human activities such as industrialised agriculture and discharge of nutrients and pollutants in the catchment area, coastal construction and dredging activities, and gravel or mineral extraction in the coastal zone or in the sea, can strongly accelerate siltation and erosion processes.

Active land reclamation has also taken place in many coastal lagoons and wetlands, and this process of course changes the ecosystem of the areas dramatically. The conversion of key areas of ecologically important habitat presents a major impact throughout the Region and is a problem that must be addressed by effective land use planning, routine compliance with zoning decisions and routine application of environmental impact assessment procedures. Areas of critical habitats, such as those either currently designated or eligible for protection under the Ramsar Convention or identified as being threatened in the HELCOM - "Red List of Marine and Coastal Biotopes and Biotope Complexes of the Baltic Sea Area," should receive high priority for management and conservation measures.

Water quality is important in determining the life conditions for flora and fauna in the area. The prevailing water quality is the result of several factors, with pollution loads from sources in the catchment area, the decomposition process, and the prevailing hydraulic regime among the most important. Coastal lagoons and wetlands in the Baltic Sea Region often receive large loads of pollutants in the form of COD and nutrients from domestic, industrial and agricultural sources in the catchment area. The pollutants and nutrients can strongly affect the sensitive ecosystems of coastal lagoons and wetlands by starting eutrophication processes and having an adverse effect on flora and fauna.

3. Biological/Ecological Parameters

Coastal lagoons and wetlands in the Baltic Sea Region often have a high and unique biodiversity. They are important areas as habitats for migrating birds, and offer spawning and nursery grounds for economically important fish, and provide habitat for diverse terrestrial and aquatic flora and fauna. The ecosystems of coastal lagoons and wetlands are in general sensitive, and siltation, erosion, drainage, eutrophication and other forms of pollution can relatively quickly lead to serious and sometimes irreversible changes of the flora and fauna. Protected areas of a number of types

currently exist and additional areas are proposed for listing as protected areas under international and national guidelines.

4. Economic, Social and Cultural Parameters

The use of coastal lagoons and wetlands is often of great importance to the economy of local areas in the Baltic Sea Region. In many cases, coastal lagoons and wetlands are intensely used for industry, shipping, urbanisation, fishing, aquaculture, tourism and recreation. Many communities and individuals earn their income from employment in sectors like tourism and fisheries that depend on sustainable development of the areas. The analysis of sustainability of the use of these areas should give consideration to the short, medium and long-term benefits at both the local and national level. Special attention should be given to the potential opportunities for local residents to benefit from improved management of these fragile resources through tourism, eco-tourism, recreation and fisheries. Some of the human uses of the areas may be conflicting. For example, land reclamation of coastal lagoons and wetlands for urbanisation or agricultural purposes may conflict with fishery or tourism activities. Proper management plans are therefore of decisive importance for sustainable development in coastal areas.