



COASTMAN – Integrative Approaches to Sustainable Coastal Zone Management in the Baltic Sea

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Abstract

One of the priorities in respect of sustainable development in the Baltic Sea Region is coastal zone management. Because of its economic and ecological relevance, the proper management of the Baltic coast poses a major challenge to all countries in the region. This paper will present some examples of initiatives on coastal zone management in the Baltic Sea Region and pay particular attention to “Coastal Zone Management in the Baltic Sea” (“Coastman”), an Interreg III B project, intended to analyse the interactions between environment conservation, conflict management and sustainable development in six coastal zones of the Baltic Sea. The project partners – Sweden, Germany, Finland, Estonia, Lithuania, Latvia and Russia – will consider environmental problems and assess the risks of the Baltic Sea coast with reference to transportation, fishing and tourism, suggesting measures to improve the current situation. Elements to be considered for the purpose of establishing better coastal zone management in the Baltic, North and Mediterranean Seas, via exchange through seminars, inspections and dialogues with regional decision makers will be discussed.

1 Introduction

1.1 Integrated and sustainable coastal management for the Baltic

Today around 60 % of the earth’s population lives within 60 km of a sea coast. To this must be added coastal tourism as practised in many countries. The burdens on coastal ecosystems are accordingly very heavy.

At present, there are many pressures and threats to coastal regions in the Baltic Sea Region: cargo shipping is growing steadily; commercial fishing is now exceeding fishing limits; and ever more exploration and pumping platforms are being built at sea, whilst wind parks are already established along the coasts of Denmark and Sweden, and the construction of such parks has begun in German waters. Additionally, there are plans for many other exploitative uses of the maritime areas of the North Sea and the Baltic Sea. Finally, many coastal areas suffer from problems (especially pollution) deriving from agriculture (Leal Filho 2004).

All these developments increase pressure on coastal ecosystems. Furthermore, every use of the sea has its counterpart on land: harbours, wharfs, company offices, processing plants, service and secondary companies. In short, one can say that coastal areas are being subjected to immense and growing burdens.

This developmental process is not happening within a comparatively resilient and stable system, but rather in areas characterised by their frailty and sensitivity. Two different ecosystems are not only juxtaposed in coastal areas; they actually constitute a continuum: the habitats and favourable sites of many biotic elements in the two ecosystems – ‘land’ and ‘sea’ – overlap and impinge on each other and thus respond particularly sensitively to disruption. By reason of its dynamic nature and suitability as a transport medium, the sea itself is another important sensitivity factor.

Since the 1970s, the development of coastal zones has demonstrated that construction projects, sealing of the natural surface to rainfall, unsecured waste, waste water and litter disposal, release of pollutants (either in major accidents such as oil spills or from small but persistent leaks) have all seriously damaged the capacity of coastal ecosystems to sustain life. A conclusion that can be drawn from this is that the principle of ‘sustainability’ must be more widely applied and serve as a continual basis for action – although initially sustainability was taken to refer only to the retention of natural systems. Sustainability may be attainable through holistic, literally ‘ecological’ thinking and acting.

The beginnings of integrated coastal zone management (ICZM) can be traced to the passing of the ‘Coastal Zone Management Act’ in the USA in 1972 to coordinate development planning along the American coastline. The four aims that this piece of legislation established are still valid today:

- to preserve, protect, develop, and where necessary and possible, to restore or enhance, the nation’s coastal resources in the widest sense, although this was mainly taken to refer to the ecological potential;
- to implement national environmental protection policy by supporting the coastal states in the creation of coastal zone management plans;
- to improve the quality of life by protecting significant ecosystem types and by the creation of planning security and long-term reliability;
- to involve governmental and local administrations and to work with regional and national authorities.

Because of the need to analyse current problems in coastal areas of the Baltic Sea and to identify ways to address them, the Coastman project was initiated. This is an Interreg III B Project involving Estonia, Germany, Latvia, Lithuania, Russia and Sweden, which is designed to analyse the interactions between environmental conservation, conflict management and sustainable development in six coastal zones of the Baltic Sea.

1.2 The aims of Coastman and problems to be addressed

From a perspective of sustainable development, integrated coastal zone management needs interdisciplinary and spatially integrative approaches, where all important stakeholders – especially those responsible for planning and the exploitation of coastal zones – are involved. Therefore, the central objectives in the Coastman project are:

- to demonstrate the conditions under which spatial conflict resolution in coastal zone management can be handled from a bottom-up perspective, starting with concrete case studies covering the problem dimensions and different cultures around the Baltic Sea;
- to identify legal, organisational, economic, methodological and cultural frameworks for CZM in participating countries;
- to find out how differences in these frameworks influence strategies for conflict resolution on local and regional levels in CZM and what adaptations of methods are necessary for each participating country.

Furthermore, Coastman intends to promote the sustainable development of coastal areas through an information exchange platform, information events and specialist workshops, combined with an exchange of experiences and best practices in conflict resolution in CZM with related Interreg projects.

A further objective of the project is the development of joint educational programmes for coastal zone management in the Baltic, with a focus on conflict resolution in spatial planning. This will be combined with initiatives to create awareness among the various stakeholders in all Baltic countries; in order that problems are fully resolved, a mixture of facts and values are needed, and solutions must be found through participatory processes involving all stakeholders.

As far as the problems to be addressed are concerned, coastal zones in the Baltic region have a great potential for economic growth. There are however several serious threats to sustainable growth in coastal zones in and around the Baltic Sea. Two of the main threats are conflicting interests and goals, and environmental pollution. In addition, potential conflicts occur, which are multidimensional, including cultural and spatial aspects. Environmental threats to coasts are also very complex and versatile. Several of the existing problems have historical roots but the rapid growth of the economies in the region (the rate of economic growth in Estonia, Latvia and Lithuania for the years 2005 and 2006 is well above the EU average) will no doubt create new problems which might turn out to be even worse than what we can imagine today. One important example is oil transportation from different terminals around the Baltic Sea. This has already created conflicts at both the local and regional levels. There is often a lack of any systematic approach to handling the problem. Such conflicts are not limited to oil transport itself, but are also related to the investments in environmental technologies. Solutions will have to be found in a process where all spatial aspects are considered and where all stakeholders participate in order to prevent the conflicts from becoming irresolvable.

Many on-going and planned projects in the region are aimed at handling either environmental problems or problems in respect of economic growth (usually in different sectors such as fisheries or tourism) separately. The problem with this approach is that conflicting interests and goals cannot be properly handled, with the risk that the results are jeopardized. In specific cases it is often obvious that there is a mix of basic facts and values which confuses the quest for practical solutions. The Coastman project takes on the task of analysing concrete approaches in specific cases studies. In this way there is a potential for the exchange of “hands on” experiences between the different countries, thus contributing to a necessary harmonization of conflict resolution strategies and methods in the Baltic Sea Region (BSR).

1.3 The approaches used

The main approach of the Coastman project, which involves universities, municipalities and companies in the Baltic Region, is to apply existing methods of system analysis and conflict resolution on coastal zones in order to handle the multidimensional aspects of sustainable development.

Many of these methods are in use today in educational programmes in order to get students to realize that there are often many dimensions and conflicting interests in problems related to spatial planning. Conflicts can often be resolved if stakeholders can shift their perspectives of the problem. The methods have to be simplified, validated and integrated in order to be of value in a process where stakeholders work together in a process for finding solutions. In many of the countries participatory processes are not common, and it will be an important part of the project to harmonize the way in which all stakeholders can be involved in conflict resolution. The process of developing indicators may be useful in this process (Bach 2004), whilst environmental information plays an important role (Langaas et al. 2002).

To demonstrate and evaluate the methods available, the project uses selected case studies where coastal zones are used for oil terminals and waste water treatment plants. In some of these cases, there are intractable on-going conflicts which have developed over the course of several years – conflicts which tend to threaten economic growth in the area. Joint workshops focus on benchmarking and evaluation of common methods, and to see which role cultural, social and economic differences play.

The project partners involved come from several important coastal zone areas around the BSR: is the south-east coastal area of Finland, the St Petersburg area, coastal zone areas in Estonia, Latvia and Lithuania, Hamburg, and the Stockholm coastal zone (figure 1).

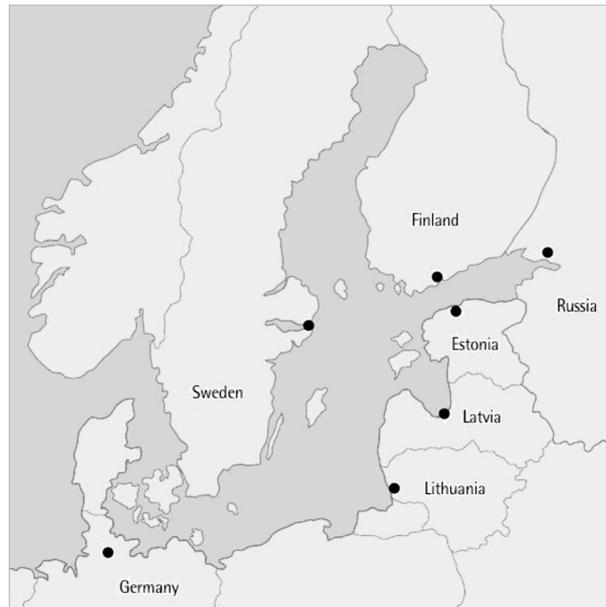


Figure 1: Coastman partners around the Baltic

The central parts of the project are the case studies carried out in several partner countries. The case studies include:

- the Loudden oil port located in the central part of the City of Stockholm,
- the Ventspils oil port located on the coast 200 km west of Riga,
- the Klaipeda oil port located in the central part of Klaipeda,
- the Haapsalu waste water treatment plant, located on the coast 100 km south-west of Tallin,
- the Primorsk oil port west of St. Petersburg (case study work within TACIS project), and
- Hamburg Harbour.

Within the project, a wide range of conflict resolution methods were applied, such as: frame analysis, hearings, round table discussions, role playing, logical framework analysis, methods for developing indicators for sustainable development, developing and using scenarios, surveys, encouraging citizen participation and the development of visions for the future, ICZM progress indicators, risk assessment for people and the environment, environmental impact assessment and strategic environmental impact assessment, other environmental system analysis tools.

2 Results

2.1 Pilot Course

During the project, a joint educational programme on coastal zone management in the Baltic Sea Region focussing on conflict resolution in spatial planning was developed. As part of it, an international “Pilot Course on Conflict Resolution” was arranged under the leadership of the Royal Institute of Technology (KTH). The course took place in Riga, 2-3 October and Stockholm, 14-15 December 2006, with over 40 participants from all over the Baltic region. The pilot course is intended to be repeated at regular intervals after the project. Participants in the first two courses consisted of project partners and stakeholders with different experiences in coastal zone conflicts, for example, politicians, managers/officers from companies, NGOs or representatives from universities. The object of the courses is to take such a diverse group of individuals and train them in order to improve their practical skills in methods of conflict resolution.

A virtual case study was used in the course. By working on a case study participants gained better insight into decision-making processes and disputes. The case study related to finding a location for a new oil harbour according to sustainable development requirements. The inspiration to the case study came from the Coastman case studies on interactions between environmental conservation, conflict management and sustainable development. The aim of the role playing was to reach a consensual agreement on the new oil harbour location somewhere in Baltic Sea, bearing in mind the requirements for sustainable development. Social, economic and ecological interests and consequences are the key issues. During the role playing, the participants acted as various stakeholders (NGOs, oil companies, politicians, fishermen, etc.).

The web-based course included on-line material focussing on methods of conflict resolution associated with infrastructural planning processes in coastal areas.

2.2 The Coastman case study in Hamburg

Hamburg is culturally and commercially the centre of all of Northern Germany. The Hamburg Metropolitan Region consists of 3.5 million people. For all of them, Hamburg is the shopping and cultural metropolis. The municipal area with its 755 km² is seven times the size of Paris and 2.5 times that of London. For this very reason, Hamburg has an exceptionally high standard of living and housing.

With 30 m² of space per person, Hamburg enjoys the largest average personal living space of all big cities in the world. In fact, 14 % of the city is consists of green and recreation areas. Hamburg is administered by a local government (Bürgerschaft) and its main economic activities are all harbour related (e.g. shipping, transport of goods, etc.). Table 1 presents some facts and figures about Hamburg.

Table 1: Facts and figures about Hamburg

	Hamburg	Germany	Germany [%]
Inhabitants	1,729,000	82,537,000	2.1
Total area	75,532ha	35,703,099ha	0.2
Built-up area and open space	26,878ha	2,308,079ha	1.2
Recreation area	5,702ha	265,853ha	2.1
Road area	8,860ha	1,711,764ha	0.5
Arable land	21,000ha	19,102,791ha	0.1
Forested area	3,432ha	10,531,415ha	0.0
Water area	6,115ha	808,462ha	0.8
Share of gross domestic product	70,243billion	1,984,300billion	3.5
Gross value added	67,933billion	1,919,020billion	3.5
<i>of which:</i>			
Agriculture, forestry, fishing trade	0.13billion	24.23billion	0.5
Manufacturing trade	11.64billion	536.84billion	2.2
Trade, repair, gastronomy	9.52billion	207.72billion	4.6
Public and private service industry	12.35billion	396.47billion	3.1
Unemployment rate in percent	9.9	10.7	(Stand 04/2005)
Gross earnings per year in euro	29,319		

The Hamburg case study focuses on the conflict which exists in respect of the use of the Elbe River which is essential for harbour operations. Existing regulations focus on local impacts of the relocation of contaminated sediments and do not take the whole catchment area into account. The case study refers to the need to address the problem sediment accumulation, taking into account at the same time environmental questions, i.e. the impact of dredging and natural conservation and environmental protection concerns, as well as the involved stakeholders.

The Hamburg case study deals with a long-standing conflict since the problem of sedimentation is a long-term one that needs constant attention. The subject matter of sediments in the Elbe has been extensively analysed (Arevalo & Heise 2003; Behrendt & Hoffmann 2002; Frey et al. 2002); experiences from other countries have also been documented (Ditschke & Markofsky 2003). However, there are many gaps that need to be filled.

Among other things the case study will analyse the extent to which a reduction of the contamination of dredged materials – as a contribution to the concept of a sustainable clean port and environment – can be achieved. It is expected that new insights into the problem will be provided and ways to address it will be suggested.

Within the case study, the “ICZM marker” was tested for Hamburg (table 2). This wide set of indicators was designed to be used as a self-assessment tool in coastal regions for better handling of conflict situations. The marker was selected to test the progress indicator in practice. The EU ICZM Group of Experts accepted the marker methodology. The Working Group on Indicators and Data recommended that EU Member States join with practitioner groups over the following years and organise national workshops (or regional workshops) to further test the progress indicator. TuTech and the EUCC tested the marker as part of the Coastman project undertakings in Hamburg, between April and June 2006. Local stakeholders and national indicator experts discussed the marker and its contribution to the implementation of the German National ICZM Strategy.

Table 2: ICZM marker, example sheet

Phase	Action	Description	N '00	N '05	R '00	R '05	L '00	L '05
1	1	Decisions about planning/managing coast governed by legal instruments						
2	8	Stocktaking of the coast has been carried out						
3	15	Statutory coastal zone management plan exists						
4	31	Monitoring shows trend towards sustainable use of coastal resources						

The ICZM progress marker table was sent to 55 stakeholders in about 45 institutions representing different sectors and administrative levels. Two months later a workshop took place at TuTech Innovation with the participation of 20 stakeholders. The stakeholders defined the weaknesses of the marker, and made practical suggestions for the improvement and application of it. In Germany the planning process is commonly a tedious, meticulous and often protracted one with stakeholder participation. Whereas this is a good basis for ICZM, it is not the equivalent of it. This deficit needs to be more convincingly communicated. In any case, as long as ICZM is an ambiguous and vague term in any country's context, the application of the marker will have its problems.

2.3 Further outcomes

Trainings: Another feature which deserves mentioning is the set of cross-sectorial training schemes, focussing on practical methods of conflict resolution. These are being designed and documented. Courses will be available on the web after the project has been completed, to be used by people working in government agencies, NGOs, universities and companies.

Handbook: A handbook of conflict resolution will be prepared and translated in various languages. It is also envisaged that the technical development of an information exchange platform will be completed during the project, whereby a “pool of excellence” will be created and the description of successful cases of conflict resolution in the Baltic region will be disseminated.

Fostering dissemination: As far as diffusion of information is concerned, the project uses a number of means including the following:

- a project website, which is up kept and marketed. It contains a description of the projects, activities and case studies, as well as guidelines and other developed materials and information concerning dissemination workshops and other project events.
- a project newsletter, published on a regular basis, and
- workshops and training courses organised for different stakeholders.

The developed guidelines and recommendations will be disseminated through networks established during the project. In addition, the mass media will be involved in the dissemination activities. Moreover, the establishment of an educational programme in the Baltic will start a long-term dissemination process.

3 Conclusions

It is widely acknowledged that sustainable development combines both social equity and environmental protection and that these items need to be considered in pursuing economic development. This is so on a worldwide basis and this line of thinking is especially relevant to the Baltic Sea, a semi-closed system where environmental impacts and contamination are felt in an especially strong way.

In order to achieve integration of sustainability and coastal conservation, it is equally important to realise that this has to be done in a democratic process, where facts and values of different stakeholders are considered. The Coastman project supports this democratic process by applying system analysis and simple but tried methods of identifying practical solutions to complex and quite serious problems.

In respect of the role of Coastman and its contribution towards integrative approaches towards sustainability in the Baltic, a matter extensively discussed by Leal Filho & Ubelis (2004), it can be said that the project considers not only the problems seen in coastal zones, but also pays a great emphasis on the action needed to solve them. In addition, Coastman is establishing an educational platform where stakeholders from different countries and sectors can meet to discuss actual problems, thus catering for the involvement of the various segments of society. Thanks to its holistic approach, flexible structure and problem-oriented approach, it is expected that Coastman may provide a small contribution towards making the goal of sustainable management of coastal areas in the Baltic, a reality.

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