BALTIC SEAENVIRONMENT PROCEEDINGS

No. 59

HELCOM SEMINAR FOR EXPERTS FROM ESTONIA, LATVIA, LITHUANIA AND RUSSIA ON THE IMPLEMENTATION OF HELCOM ARRANGEMENTS, OTHER INTERNATIONAL INSTRUMENTS AND RELATED MATTERS

Riga, Latvia
30 August - 3 September 1993

HELSINKI COMMISSION
Baltic Marine Environment Protection Commission
1994

For bibliographic purposes this document should be cited as:
HELCOM, 1994
HELCOM Seminar for Experts from Estonia, Latvia, Lithuania and Russia on the implementation of HELCOM arrangements, other international instruments and related matters
Balt. Sea Environ. Proc. No. 59

ISSN 0357-2994

Helsinki - Government Printing Centre

LIST OF CONTENTS

PREFACE

In this publication only the main statements and lectures dealing with basic HELCOM procedures and activities have been included. This means that all the national presentations on the present status in the respective countries have been left out.

HELCOM SEMINAR
for Experts from Estonia, Latvia, Lithuania and Russia
on the implementation of HELCOM arrangements,
other international instruments and related matters

Riga, Latvia

30 August - 3 September 1993

General statements and lectures

OPENING STATEMENT BY MR. ULF EHLIN, EXECUTIVE SECRETARY, AT THE HELCOM SEMINAR FOR EXPERTS FROM ESTONIA, LATVIA, LITHUANIA AND RUSSIA ON THE IMPLEMENTATION OF HELCOM ARRANGEMENTS, OTHER INTERNATIONAL INSTRUMENTS AND RELATED MATTERS, ON 30 AUGUST - 3 SEPTEMBER, 1993, IN RIGA, LATVIA

Mr. Minister, Mr. Chairman, Ladies and Gentlemen,

it is a great pleasure to me to welcome you, on behalf of the Helsinki Commission, in this HELCOM Seminar for Experts from Estonia, Latvia, Lithuania and Russia on the implementation of HELCOM arrangements, other international instruments and related matters.

I also welcome the Chairman of the Commission, the Chairmen of the HELCOM Committees, PITF and working groups and other lecturers of this Seminar. Especially I would like to welcome the lecturers from organizations outside the HELCOM family. We are grateful for your interest and willingness to contribute to this Seminar.

Let me also express our sincere thanks to the host country Latvia for the invitation to arrange the Seminar here in Riga. You have provided us with good premises and services, thus creating basic conditions for a good seminar.

The decision to arrange this Seminar was taken by HELCOM 14 in February this year. The main aims of the Seminar are as follows:

- to provide the experts with detailed information on all the activities of the Helsinki Commission as well as on other international instruments and arrangements which have relevance to these activities

- to exchange views on how these arrangements could be implemented in the countries concerned

- to present national problems related to implementation of these arrangements in the countries concerned.

The background for this decision to arrange the Seminar is the new political situation in the former USSR. The organization of the environmental work in the new countries has been changed and new persons are involved in the HELCOM work. It is important to give these persons a good basis for their future work.

Let me also emphasize the importance of learning to know each other, creating good contacts and getting new discussion partners as well as aiming at involving all the participants in the well-known HELCOM spirit during this Seminar. We are all essential links in the human network the target of which is to clean up the Baltic Sea and protect it for the future.

The goals of this work are set by your Governments in the 1974 and 1992 Conventions, the Ministerial Declarations and decisions as well as the Joint Comprehensive Environmental Action Programme. We have the responsibility to implement them.

This cooperation enables the countries in transition to have all kinds of support, viz. knowledge, technology and financial means, but also gives them responsibilities and

obligations. When fulfilling HELCOM's tasks, it is utterly important that all the countries, institutions and individuals involved contribute with their share of work, knowledge, experience and information, whatever the need may be.

Please, Ladies and Gentlemen, be active during this Seminar, do not hesitate to make questions and to participate in the discussions. Whether this Seminar will be a success or not, depends on you, to a large extent.

As some of you may not be so familiar with the HELCOM organization and procedures, I will here give you a brief introduction.

The HELCOM oraanization in short

The Commission consists of delegations from the Contracting Parties. At present, these Governments are Denmark, Estonia, Finland, Germany, Lithuania, Poland, Russia and Sweden.

Latvia, who has not yet acceded to the Convention, acts as an observer country to HELCOM.

Other observers of HELCOM are the following international governmental organizations:

Commission of the European Communities (CEC)
Intergovernmental Oceanographic Commission (IOC)
International Atomic Energy Agency (IAEA)
International Baltic Sea Fishery Commission (IBSFC)
International Council for the Exploration of the Sea (ICES)
International Maritime Organization (IMO)
Oslo and Paris Commissions (OSCOM/PARCOM)
United Nations Economic Commission for Europe (ECE)
United Nations Environment Programme (UNEP)
World Health Organization, Regional Office for Europe (WHO/EURO)
World Meteorological Organization (WMO).

We have also non-governmental international organizations as observers to HELCOM, such as World Wide Fund for Nature (WWF), Coalition Clean Baltic (CCB) and Stichting Greenpeace Council, Greenpeace International.

Also some additional countries, as well as several financial institutions and observers participate actively in HELCOM PITF, of which you will learn more later on today.

The Commission meets regularly once a year, usually in February or March.

The Commission has four Committees: the Environment Committee (EC), the Technological Committee (TC), the Maritime Committee (MC) and the Combatting Committee (CC). Furthermore, the Programme Implementation Task Force (PITF) was established to work with the implementation of the Baltic Sea Joint Comprehensive Environmental Action Programme.

The Committees, too, meet once a year, whereas HELCOM PITF has several meetings per year.

The Committees have permanent or ad hoc working groups, which, in principle, discuss issues and prepare proposals to be forwarded to their relevant Committee. The Committees discuss, among other things, the proposals of their respective working groups and prepare matters for the Commission to decide upon.

The decisions of the Commission must be taken unanimously. Certain decisions are given as Recommendations to the Contracting Parties, not being legally binding to the Governments involved but are expected to be implemented by the countries themselves within their own legal structure.

For specific tasks, the Commission can establish ad hoc working groups directly responsible to the Commission. At present, one such working group deals with dumped chemical munition in the Baltic Sea Area.

HELCOM also organizes various seminars, symposia and other meetings. You will learn more about the HELCOM activities during the coming days.

The Secretariat of the Commission is situated in Helsinki, Finland. At present, there are thirteen persons working in the Secretariat; let me introduce those who are participating in the Seminar to you:

Ms. Terttu Melvasalo, former Programme Coordinator, now Senior Advisor
Mr. Niels-J. Seeberg-Elverfeldt, our new Programme Coordinator
Ms. Eeva-Liisa Poutanen, Environment Secretary
Ms. Teija-Liisa Lehtinen, Environment Assistant
Mr. Vassili Rodionov, Technological Secretary
Mr. Adam Kowalewski, Maritime Secretary of the Maritime Committee and the Combatting Committee, as well as coordinator of this Seminar
Ms. Leena Heikkilä, Maritime Assistant
Mr. Håkan Blomberg, Administrative Assistant.

Thank you.

Fleming Otzen
Chairman of the Helsinki Commission

16 August 1993

ACHIEVEMENTS OF THE HELSINKI COMMISSION

Introduction

Before considering what has been achieved within the Helsinki Commission context I think it is worthwhile to look a little back in time to the early seventies when the HELCOM process was set in motion.

Let us start in 1972 which was the year when the United Nations Conference on the Human Environment took place in Stockholm which changed the old way of thinking that development was the main objective while protection of the environment could wait until later.

Thus, the Conference adopted the principle of "Only One Earth" which stresses the need to handle economic development within the framework set by the environment.

In the general principles for assessment and control of marine pollution adopted by the Conference it is stated that States should join together regionally to concert their policies and adopt measures in common to prevent pollution of the areas which, for geographical or ecological reasons, form a natural entity and an integrated whole.

This message to the European marine regions sat in motion the work on the legal regimes for protection of the marine environment in the different European geographical areas, thus also in the Baltic Sea Area.

In the Baltic the Government of Finland took the initiative and approached the other six Baltic Sea States and inquired whether they would be interested in the preparation of an agreement for the protection of the Baltic Sea.

Taking into consideration the political situation around the Baltic in those days where some countries belonged to NATO, some to the Warsaw Pact and the remainders were neutral as well as there were different political ideas applied in different parts of the region then it seem for us to day unbelievable that all states replied in the positive.

The regional process could then start and in May 1973 government experts convened in Helsinki to prepare a Diplomatic Conference on the preservation of the marine environment in the Baltic Sea.

One of the most important conclusions from that meeting was that the Conference should take an overall approach to the problem and adopt a convention which should address all sources of marine pollution as well as it should address the co-operation between the Baltic States, e.g. scientific and technological co-operation and co-operation in combatting spillages on the sea.

The meeting also prepared a note on the special characteristics of the Baltic Sea with the aim to obtain the acceptance of the International Conference on Marine Pollution,1973 to include the Baltic as a "Special Area" in the International Convention for the Prevention of Pollution from Ships, 1973 - also known as MARPOL 73 - which should be adopted by that Conference in November 1973.

This note was submitted to the Intergovernmental Maritime Consultative Organization (IMCO), which is now known as the International Maritime Organization (IMO), by the Government of Finland on behalf of all the Baltic Sea States.

This was the first occasion ever by which the seven Baltic Sea States took a common action within this Organization. However, many were to follow and it should also be mentioned that the action was successful as the Baltic Sea Area was included in the MARPOL 73 Convention as a "Special Area".

On 22 March 1974 the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1974 (Helsinki Convention) was signed in Helsinki by the Ministers from all seven Baltic Sea States responsible for the environment.

The Convention was structured in such a way that one commission, the Helsinki Commission, was the one and only body that dealt with all aspects related to the protection of the marine environment in the whole region.

It is worth while noting that the Helsinki Convention was prepared in such a short time and on the basis of unanimity as well as no votes were taken nighter during the preparatory stage nor at the Diplomatic Conference.

As the Conference was aware that a period of time would necessarily elapse between the signing of the Convention and its coming into force an Interim Commission was established to expedite the work at hand and to prepare the later activities of the permanent commission, the Helsinki Commission.

My lecture today at the opening day of the HELCOM Seminar in Riga has the title "Achievements of the Helsinki Commission" but having taken you back to the early seventies in my introduction and recalling that the Helsinki Commission was born as late as in May 1980 the most proper title should supposedly have been:

Achievements from the Helsinki Convention Process

During this week you will be informed about what has been done within the framework of the Helsinki Commission for the last thirteen years and what results that have been achieved and I shall certainly try not to interfere with other speakers subjects.

I shall thus concentrate on achievements from the almost twenty years long Helsinki Convention Process which are unique for this process.

First of all it was in a way quite strange that the process could start at all taken into consideration the prevailing political situation in the world in the early seventies and the Baltic Sea was at that time certainly not a sea of peace.

But never the less the wise fathers of the Helsinki Convention realised that the condition of the marine environment was so alarming that despite political differences between the Baltic Sea States something had to be done to restore the ecological balance of the sea.

The wise fathers of the Convention were also wise in other respects.

In order not to give the member states any privileges in relation to language they decided that the official language of the Commission should be the English language which was not the mother tongue of any of the Baltic Sea States.

All States were thus on equal footing in relation to language and it is my feeling that the mere fact that delegations had to discuss with each other in a foreign language helped them to concentrate on

facts and thus avoiding the long lasting and unnecessary "ritual square dances" which we experience too often in other international fora.

And by the way it is also more difficult to be naughty to each other in a foreign language!

The written language we use in the Commission is known world wide as "Baltic English" and many are the times when English speaking people have complimented our language for being exact and easily readable, however with little variety. But what does that matter as long as those who read it understand it.

Also a wise thing to decide was that the national contributions to the Commission should consist of equal shares to avoid that any of the States would have more influence on the decision making due to a larger contribution.

This was a wise decision at that time but it has certainly created some difficulties nowadays due to the present economic situation in countries with economies in transition as well as in other countries within the Region.

The creation of the Interim Commission was another splendid idea the work of which made it possible for the Helsinki Commission to start its work immediately upon its establishment on 3 May 1980.

Achievements of the Helsinki Commission

The work of the Helsinki Commission has been characterized since its start on efforts aimed at facilitating specialist co-operation and discussion across political divisions and a political discussion has only been experienced once and it addressed the special Berlin after war status.
This political issue was soon solved and created no further problems for the work of the Commission.

As to the decision making by the Commission it has often been criticised that decisions had to be taken in Recommendations to the Governments which were not legally binding and which had to be taken in unanimity.

It was thus argued that the speed of the Commission thereby had to be adjusted to the speed of the slowest ship in its convoy.

In a way this argument is to a certain extend correct but from experience we know that this, should we say, more friendly procedure gave the less developed countries an incentive to go somewhat further than originally planned while the more developed countries abstained from insisting on the most stringent solution.

If one compare this procedure with the more strict procedures used in other comparable international organizations one must conclude that the HELCOM procedure has in no way resulted in less results for the marine environment and I would even say on the contrary .

This conclusion seems to be correct as the same decision making process will also be applied when the 1992 Helsinki Convention enters into force.

When we look at the first years of the Commission's life then the activities within the maritime and combatting fields were given much attendance by the Commission sometimes to the frustration of the scientific society which argued that at least the maritime matters could well be taken care of in the global concept within IMO.

Luckily the Commission was firm in its opinion and the result was that all international regulations for prevention of pollution of the sea was applied in the Baltic years before they entered into force worldwide; and some of these regulations are still only applied in the Baltic.

Later on it was the time when the maritime society felt some frustrations when the scientific- and later on the technological work within the Commission were really set in motion.

To illustrate this I need only to recall the Baltic Monitoring Programme, the Periodic Assessments of the State of Marine Environment of the Baltic Sea, the Costa1 Assessments, the Pollution Load Compilations as well as the number of seminars and the long list of HELCOM Recommendations in the scientific- and the technological fields.

It is also worth while noting that the Commission has always realized that when you intensify and broaden the work of the Secretariat you need to allocate more manpower and the Commission has followed this principle when the work in the technological field was intensified in 1988 and also in 1990 when the HELCOM ad hoc High Level Task Force was added to the HELCOM organization.

Within the HELCOM procedure it has also been possible to call for a ministerial meeting when a political decision had to be taken on far reaching environmental protection measures.

We saw that in 1988 when the Ministers adopted the Declaration on the Protection of the Marine Environment of the Baltic Sea Area which included, inter alia, a most important commitment on a substantive reduction of the substances most harmful to the ecosystem of the Baltic Sea in the order of 50 per cent of the total discharges of each of them, as soon as possible bot not later than 1995.

From that year and onwards we saw a drastic change of the political situation in the Baltic Area. We experienced the German unification, the change of political systems in East- and Central Europe and the creation of new independent States.

We also suddenly experienced that environmental protection measures are closely linked to the financing capabilities available and to the transfer of technology.

The financial situation in the Baltic States with economies in transition had never been discussed earlier as this subject was a touchy political question which had been rather difficult for the Commission to deal with although some attempts had been made.

This situation started the Swedish Ronneby initiative the result of which was the Ronneby Declaration adopted in September 1990 at the Ronneby Conference by Heads of Governments and High Political Representatives of the Baltic Sea States, Norway, the Czech and Slovak Federal Republic and the Representative of the Commission of the European Communities.

One of the results was the creation of the earlier mentioned HELCOM Task Force which brought the financial dimension under the umbrella of the Commission.

Also in 1990 the Commission decided that the time was ripe to start a revision of the 1974 Convention to bring it up to date with the developments since its signing.

What started as a revision ended up as an elaboration of a completely new Convention in which all the latest ideas and developments are reflected while the institutional and decision making procedures are kept as they appear in the present Convention.

Let me finally touch upon the HELCOM attitude to Non Governmental International Organizations.

In earlier days it was unthinkable to give observer status to such organization within HELCOM, but at a certain stage it was realised that the work of the Commission could benefit from more openness towards these organizations.

With a couple of years observership from these organizations the Commission, as the first regional organization, granted them full observer status and this initiative is now under application in other regions.

Conclusion

I have been working within the Helsinki Convention process since 1973 as National Delegate, as Head of Delegation, as Maritime Secretary and later as Executive Secretary of HELCOM and now as Chairman of HELCOM so maybe I am somewhat biased when I look backwards on the achievements from this process.

First of all I know that we have organized ourselves in a splendid way and I judge that from the fact that the Commission has been able to cope with new and additional topics without changing the structure of the basic set-up.

When I compare the results from HELCOM with the results from other regional organizations we should not be ashamed, on the contrary ,we should be proud and happy of what we have achieved under conditions that have been completely different from what is experienced in the other regions.

The professional standard of our work is very high and that is recognized also outside the region and the same goes for the efficiency of the HELCOM Secretariat.

The co-operation within the Commission is constructive and pleasant and that goes for both delegations and observers.

The host country of the Commission, the Republic of Finland, has always been very helpful to the Commission and its Secretariat as well as the host country has financially supported the Commission substantially.

So, all in all we should be quite confident when closing in on the twenty years anniversary next year, however the confidence very much depend on whether we have solved our financial problems in relation to the Commission's budget and last but not least regarding the Baltic Sea Joint Comprehensive Environmental Action Programme.

HELCOM SEMINAR
for Experts from Estonia, Latvia, Lithuania and Russia
on the implementation of HELCOM arrangements, other
international instruments and related matters

Riga, Latvia 30 August - 3 September 1993

IMPLEMENTATION OF THE 1992 HELSINKI CONVENTION
Presentation by Mr. Pertti Harvola, Finland

Ladies and Gentlemen,

I am not attempting an in depth study of the various aspects, merits or demerits of the 1992 Helsinki convention, since you have ample opportunity to consult experts during this Seminar. My presentation will be a somewhat general one.

When we begin to discuss the 1992 Convention it is useful to recall that the 1974 Convention is among the first regional convention in environmental matters. It has served as an example to other regional conventions and been the most important all-Baltic multilateral cooperative framework. It has never been perfect, however. Few conventions have, since they alweays reflect the political and economical possibilities of the time. So doeas also the 1992 Helsinki convention.

Since the signing and entry into force of the 1974 Convention environmental awarenes had considerably strenghteded, international environmental law had made progress and political developments seemed to open new

possibilities. HELCOM decision in 1990 to establish an ad hoc group to bring the 1974 convention in line with the developments pointed out, among others, the following issues that the group should consider:

*increasing legally binding provisionsin the field of prevention and control
*application of the precautionary principle
*development of legal instruments to control pollution from diffuse sources
*enlargement of the convention area to cover the internal waters of the contracting parties and the whole catchment area of the Baltic Sea
*reporting procedures to strenghten the follow-up

The revision was to be completed in 1994. The ad hoc group was not adviced to prepare a new convention, nor was it instructed not to do so.

Furter developments stepped in, namely the Ronneby conference in September 1990, which gave new ideas for the revision work, and the energetic Swedish Minister of the Environment, who urged the ad hoc group and HELCOM to complete the revision already two years earlier, that is in early 1992.

The result presented first to HELCOM and after its blessing to the diplomatic conference in April 1992 was a new convention since the ad hoc group had realized towards the end of its work that the amendments to the 1974 convention would be so extensive as to justify their incorporation in a new convention that would replace the existing one. One of the reasons that made that solution even more appealing was the wish to prepare for the EEC an opportunity to participate in the conference on equal footing with the coastal states. We recall that a process

to amend the 1974 convention was already under way to enable the EEC to become party to the convention and that it also participated in the work of the ad hoc group, even if as an observer only but very actively.

The new 1992 convention builds upon the existing one, but the improvements do, I believe, bring it in line with the developments since 1974, as was the wish of HELCOM when it initiated the the revision process two years earlier. It is important to point out, hoewver, that the institional structure established in 1974 remains unchanged. I refer to article 19 according to which the present commission will continue to function as the commission of the new convention. It was important to secure continuity and smooth transition upon the entry into force of the new convention. This was also pointed out by the 1992 conference which adopted resolution no. 2 requesting HELCOM to secure the continuity of the terms of office of the Executive Secretary and other staff members. The only major amendments made to the institutional articles were necessitated by the membership of EEC in the commission. So it seems that the states were pleased with the way the Commission and the secretariat have functioned.

Question of the internal waters

In both conventions Article 1 defines the convention area which means the geographical application of the convention. One of the major deficiensies of the 1974 convention is the fact that the internal waters of the contracting parties, that is the sea area next to the coastline, are explicitly excluded from the geographical area where the convention is applied. At least to me it creates a mindboggling situation considering that most of the pollution of the Baltic Sea comes from land and through the internal waters. Somehow this riddle has been

solved by HELCOM but data on the condition of that particular strip of water has been deficient.

Article 1 of the 1992 convention remedies this situation by explicitly including the internal waters in the convention area. It is left for the contracting parties themselves to define the landward limit of the internal waters. The conference felt, however, that all contracting parties shall apply basically similar principles when defining the landward limit and initiated joint preparation of these principles. The work has been completed and guidelines are now available.

Catchment area

It seems that the question of geographical application was neatly solved by including the internal waters in the convention area. Let us take a closer look.

HELCOM already some years ago adopted the principle the measures shall be taken also in the catchment-area of the Baltic Sea, that is within the land area from which rivers flow to the Baltic Sea. This principle is now written in article 6, paragraph 1, last sentence. The article spells out principles and obligations concerning pollution from land-based sources. I quote ."The relevant measures to this end shall be taken by each Contracting Party in the catchment area of the Baltic Sea without prejudice to its sovereignty" unquote. In the new convention the principle has gained the status of a legal obligation while at present, under the 1974 convention, it is a HELCOM recommendation and from a legal point of view has a much lower status.

It is clear that even without an explicit provision in the convention or a recommendation measures must be taken on

land to implement the commitmments of the contracting parties. Anything else would be inconceivable, but now it is explicit that not such human activity on land can be permitted that causes pollution of the Baltic through watercourses or through the air or by any other means, which is not in accordance with the provisions of the convention or pertinent HELCOM recommendations.

This seems to lead to the conclusion that the convention area defined in article 1 of the 1992 convention actually constitutes the sea area which is subject to protection and that sea area together with the catchment area constitute the area of application.

Legally binding nature of the convention

As I mentioned earlier the ad hoc group that prepared the new convention was asked to consider the possibility of increasing the legally binding provisions in the convention. What was actually ment by " legally binding" caused a lot of discussion. Did it mean that such obligations that in the 1974 convention were general and required further elaboration through national measures and HELCOM recommendations, according to the ecopolitical desires and economic resourses of the individual contracting parties, should be made more straightforward and directly binding. Yes, it was felt, it could mean that. Did it mean that by introducing modern language and concepts the obligations become stricter and the approach to protection of the environment more comprehensive. Or did it mean that the Commission should be given more extensive powers in follow-up and control, maybe even in decision making. All those questions were, it was felt, somehow related to the that particular notion of "more legally binding provisions" even though they seem to deal with totally different questions. They have a common

denominator, however, in that an affirmative answer to any one of them would strenghten the convention.

When you compare the new convention with the present one you can see that all these questions were answered in the affirmative except one. The decision making powers of the commission were not extended. I will deal briefly with this question.

HELCOM has been critisized for its inability to pass decisions in the fielf of environmental protection that would have a legally binding character upon the contracting parties. Under the 1974 convention binding decisions relate to the internal, administrative functions of HELCOM. Decisions relating to the implementation of the convention are termed recommendations whose legal character, legally binding effect upon the contracting parties has been much discussed. The truth, of course, is that HELCOM is not a supranational organization that would pass legislation with unquestionably binding effect on its members. The recommendations have been characterized as "soft law", which the members are under moral obligation to implement. Non-observance can also lead to political consequences, critisism from other members of the organization, but HELCOM has no legal authority to enforce its recommendations.

During the revision process the question was raised, whether HELCOM should be given the authority to make binding decisions, even by a qualified majority, in matters which now are covered by recommendations. The conclusion was that it should not. It is not wise. Such an authority would be counterproductive. It is better to continue to work by concensus. There are also other means to improve compliance with the decisions even if they are recommendations only.

In the 1992 convention the fuctions of HELCOM and of its members are essentially the same as in the present convention. But the new convention contains a number of new provisions which impose new obligations upon the contracting parties dealing with their mutual relations, relations with the public and relations with HELCOM.

Article 7 brings a Baltic dimension to environmental impact assessment procedures, duty to notify and consult fellow contracting parties. It is to be noted that this article does not require anyone to do an environmental impact assessment. The requirement mus first come from other international sources.

Article 13 requires a contractin party to notify such other contracting parties whose interests may be affected by a pollution incident and also to consult with them on how to deal with the situation.

Article 16 requires the contracting parties to report regularly to the commission on the national measures they have taken to implement the convention and also the recommendations HELCOM has adopted. The commission or any contracting party has also the authority to ask for, and the contracting parties are under legal obligation to provide, information on discharge permits, emission data etc.

Article 17 requires the contracting parties to provide the public with a reasonable opportunity to acquire information on measures, taken or planned, to prevent and eliminate pollution and also on the quality of the Baltic Sea waters.

The purpose of these provisions is to encrease the openness among the contracting parties, openness towards

the general public, openness within HELCOM, and thereby better ensure compliance with the oblications under the convention and HELCOM recommendations.

We are now engaged in drafting the national laws and regulations to enable us to ratify the new convention. That may be a major job, depending on the state and nature of our laws on environmental protevtion. The new laws only provide the authority and framework for national implementation of the convention. For some contracting parties the entry into force of the new convention is not any major change in the ongoing process, for some it may be. But the truth is that implementation of a convention is not only a bureaucratic process, it is also harnessing major national and international resources towards reaching the goals of the convention- a quote from the preamble of the convention: to assure the ecological restoration of the Baltic Sea, ensuring the possibility of self-regeneration of the marine environment and preservation of its ecological balance.

HELCOM SEMINAR
for Experts from Estonia, Latvia, Lithuania and Russia
on the implementation of HELCOM arrangements,
other international instruments and related matters

Riga, Latvia

30 August - 3 September 1993

Main lectures in the field of the HELCOM Programme Implementation Task Force (HELCOM PITF)

The Baltic Sea Joint Comprehensive Environmental Action Programme (JCP)

- Status of action taken and planned -

Terttu Melvasalo, HELCOM, Senior Advisor
Riga, Latvia, 30 August - 3 September 1993

I BACKGROUND

The Prime Ministers of the Baltic Sea riparians gathered in September 1990 in a Conference in Ronneby, Sweden and decided that the state of the Baltic Sea called for the elaboration of a major international action programme in order to restore the Baltic Sea to a sound ecological balance. A Task Force consisting of representatives of all relevant countries in the Baltic Sea catchment area, five multilateral international financial institutions and the European Commission elaborated the Programme on the basis of national plans and pre-feasibility studies. A summary of these studies was published as Baltic Sea Environment Proceedings (BSEP) No. 46. The Task Force submitted the Programme to a Diplomatic Conference in April 1992 of representatives of countries in the Baltic Sea catchment and the European Commission. They adopted the JCP and decided to establish a HELCOM Programme Implementation Task Force consisting of the 14 countries in the Baltic Sea catchment area, the European Commission, the five multilateral international financial institutions and the International Baltic Sea Fishery Commission (IBSFC). The JCP is published as BSEP No. 48. The Conference also called for the organization of a High Level Resource Mobilization Conference which was held in March 1993 in Gdansk, Poland. It was already clear at this point that JCP implementation will require a multiplicity of funding sources, particularly in Eastern countries in transition which at least for the time being would not be in a position to mobilize all requisite resources. A compilation of statements at this conference was published as BSEP No. 47.

II CONTENTS

The Programme has a lifetime of 20 years with projected costs of investment for its implementation of some 18 billion ECU. The JCP has six elements. While it focuses at its core on element 3 “Investment Activities” for the deletion of point and non-point sources of pollution, particularly 132 so called hot spots, predominantly of industrial and municipal nature. 47 of these hot spots received a priority status. The other elements basically supplement and complement element 3. Element 1 “Policies, Laws and Regulations” calls particularly for the requisite environmental legislation and legal framework.

Number 2 “Institutional Strengthening and Human Resources Development” takes account of missing public infrastructure and administration as well as of the large need for experts. Number 4 “Management Programmes for Coastal Lagoons and Wetlands” wishes to ensure that these highly ecologically sensitive and valuable areas are properly managed. Number 5 “Applied Research” contributes to the integral importance of this element when implementing particularly the investment activities envisaged under element 3. Finally, element 6 “Public Awareness and Environmental Education” is crucial for the entire JCP implementation since its success will ultimately rest on public support.

III STATUS OF IMPLEMENTATION

HELCOM PITF had decided to call on its members and observers to accept Lead Party roles for the implementation of individual Programme elements. The picture is not complete yet. We are happy to note, however, that Sweden took the Lead Party role for “Combined Municipal and Industrial Wastewater Treatment” and Finland that for “Industrial Pollution Control”, both sub-elements of element 3 “Investment Activities”. Observers of HELCOM PITF also play an active role. HELCOM PITF decided to establish a Working Group for “Management Programmes for Coastal Lagoons and Wetlands“ (JCP element 4) under the leadership of the World Wide Fund for Nature (WWF). Coalition Clean Baltic (CCB) volunteered to co-ordinate first activities and organize an Informal Meeting for the implementation of “Public Awareness and Environmental Education” (JCP element 6). HELCOM PITF had noted in its Second Meeting in May 1993 the need for the establishment of a Working Group.

Sweden was instrumental to organize an ad hoc Working Group on the Use of Economic Instruments. HELCOM PITF 2 decided to adopt Terms of Reference for this Group and invited representatives of its members and observers to nominate their experts for a meeting to be held early autumn 1993.

Topical information on the status of activities at the JCP hot spots will be provided in an Activity Inventory to be published end 1993, early 1994.

HELCOM SEMINAR
(Riga, Latvia, 30.08.93 -2.09.93)

Submitted by Russia

Statement

on matters related to the activity within the HELCOM Programme Implementation Task Force (HELCOM PITF)

Cooperation of the Baltic Sea States within the framework of the TELCOM Task Force on matters related to elaboration and implementation of the Baltic Sea Joint Comprehensive Environmental Action Programme can be considered as a model of joint activity of industrially developed countries and the countries with the economy in transition in solution of regional and global ecological problems.

Despite some political and economic difficulties this Programme was elaborated in a record-breaking short time. The Russian Contracting Party is satisfied on the whole by the results of the first stage (prefeasibility studies) of the Programme elaboration, though not all our proposals were included in it. Priority projects and problems included in the Programme for further elaboration pose a serious threat to the environment and human health in the Baltic region.

Municipalities, pulp and paper mills, livestock farms and enterprises for recycling and disposal of hazardous wastes in Leningrad and Kaliningrad regions included in the Programme contribute to the environment about 50% of anthropogenic load from the Russian territory.. This constitutes a significant contribution to the total impact on the Baltic Sea marine environment . Unfortunately, some enterprises-polluters proposed by our experts were not included in the Programme. But this does not mean, that we do not plan to carry on necessary environmental measures on these sites in accordance with our national plans.

The Programme was submitted to the Russian Government for consideration and inclusion in the List of Federal Ecological Priority Programmes in order to provide necessary conditions for its implementation in Russia. It was also included in the Draft Federal Programme of the Economy Re-structuring, which is under consideration by the Government.

The Environmental Law of Russia defined the competence of federal, regional and local executive authorities and enterprises-users of natural resources in matters concerning elaboration and implementation of ecological programmes. Nevertheless, in 1992 the most capital-intensive environmental measures were financed from the federal budget, but in much less amounts than before.

Governmental financial support from the federal budget is still envisaged for implementation of federal ecological programmes and international environmental obligations of Russia. But the local budgets of all levels and the budgets of enterprises-users of natural resources should become the main financial source. Besides, financial resources of newly established ecological funds will be allocated for these purposes.

In order to make this idea real and workable we started in 1993 to apply more actively in our environmental practice new economic instruments and a system of ecological restrictions and regulations to adjust in to market economy conditions. Much was done in this respect already in 1992, but still our country is not in a position to provide a reliable financial support for environmental measures implementation from the national sources.

Efforts of our environmental authorities are aimed at keeping the ecological safety of the population at the existing level and preventing an increase of ecological damage to the neibouring states.

During the last year the ecological situation in the Russian part of the Baltic Sea Area did not change significantly. Discharges of some heavy metals and oil products remained practically unchanged. Discharges of BOD and phosphorus were reduced. But discharges of nitrogen in Leningrad region increased. We understand that this situation cannot last long and cannot satisfy our neighbours in the region. But it is quite clear *now* that Russia is not in a position to implement in due time the international obligations according to the Ronneby Declaration of 1990 at the expense of only our national resources. That is why foreign investments in the form of loans, technologies transfer and technical cooperation are important for the Programme implementation in Russia. This is important for our partners as well due to our common ecological problems in the Baltic Sea region.

We understand, that the present social, economic and political situation in Russia and inadequately adjusted legal standards create a considerable risk and prevent intensive development of financial and economic relations. Nevertheless, we think that our common tasks will allow to elaborate common and mutually acceptable approaches for solution of ecological problems under conditions of political instability.

Good traditional and successful relations and cooperation in the field of environment protection have been established between Finland and Russia by now, and a strong basis has been laid for cooperation in the Programme implementation. We have also started preparation of joint projects with Denmark, Germany, Norway, USA and some other countries.

Further cooperation with the international financial institutions and bilateral cooperation with the countries interested in the Programme implementation will be more successful, if regional

and local executive authorities, including environmental ones, are actively involved in this work.

The Ministry of the Environment and the Natural Resources Protection of Russia at its Board meeting adopted a decision to recommend to the regional environmental bodies (Leningrad and Kaliningrad Committees and the Ministry of the Environment in the Republic of Karelia) to establish groups of specialists for coordination in their regions of activities on the implementation of the Programme and HELCOM obligations.

Training of these specialists is the main task of the Ministry at present. In Russia as in some other countries the environmental management practice requires improvement and development. And we hope, that participation of specialists from the regional environmental bodies in the implementation of HELCOM tasks and, in particular HELCOM PITF tasks, will help to fill the gaps. In this connection, we attach great importance to the results of this Seminar.

Thank you for attention.

ENVIRONMENTAL PROTECTION DEPARTMENT OF LITHUANIA

IMPLEMENTATION OF THE BALTIC SEA JOINT COMPREHENSIVE ENVIRONMENTAL ACTION PROGRAMME IN LITHUANIA

Prepared by Daiva Semeniene for the HELCOM seminar for experts from Estonia, Latvia, Lithuania and Russia on the implementation of HELCOM arrangements, other international instruments and related matters, Riga

Mr. Chairman, Dear Colleagues, Ladies and Gentlemen,

Let me express our thanks to the hosts and Helsinki Commission for the organizing this seminar.

It is especially useful for us - representatives of new parties of the HELCOM to deepen our knowledge about the different HELCOM matters. Also it is very important that we can discuss here, among the countries of more or less the same economical situation, problems that are urgent for us concerning the improvement of the Baltic sea ecological state, to exchange little experience we have and to try to find together ways for the better discharge of our duties.

I would like first of all, before the description of our state in the implementation of Action Programme, to touch upon the some problems we have in Lithuania as far as HELCOM PITF questions are concerned. We have only done our first steps in the HELCOM activities, but, nevertheless, some self-criticism I would like to express here.

It is clear that we have to make our work in this field more intensive (to study more deeply all the papers, to submit more comments, to contact hot spots more frequently). However, this is stipulated by subjective and also by objective reasons. First of all, the lack of the money doesn't allow to set special institutional unit for the solving questions related to HELCOM. Thus people working at the Environmental Protection Department aside their ordinary work have additional duties with HELCOM matters. It is very difficult to do all the best being responsible in a lot of fields. Second, rather unstable organisational situation in Lithuania doesn't help to work purposefully. Third, we have to admit that problem of knowing languages is very important now for us, because often professionals with experience in the field of environmental protection

cannot read and communicate in English which is HELCOM language. Such are problems connected with institutional and human resources strengthening. Fourth and the main reason of complicated work in the realization of the HELCOM recommendations is connected with a difficult economical situation. Needs of industrial enterprises - hot spots - are changing every day, because many of them are partly stopped and they are seeking for the new partners and the new production. Hot spots of the other type - waste water treatment plants - lack money for their construction works. Now I have come to the hot spots, so let me talk about the main thing PITF has to do - about the initiating, coordinating and facilitating implementation of the Baltic Sea Joint Comprehensive Environmental Action Programme in Lithuania.

15 points were defined as major sources of contamination in Lithuania in the Baltic Sea Joint Comprehensive Environmental Action Programme. Hot spots consisted of 9 municipalities with industries connected to the municipal collectors, 5 industries with direct discharges of pollutants into the water bodies and 1 agriculture hot spot.

The extinction of these hot spots, i.e. the implementation of the. Programme is conditioned by the possibilities to get both internal and external assistance. This financing in Lithuania as well as in the other Baltic countries greatly depends on the economical situation.

Due to the very difficult economical situation the Government of Lithuania is unable to give the priority for the environment field. Nevertheless, the Government is very aware of the urgency of environmental measures and, having in mind the importance of sustainable development, has identified a number of priority areas in this field.

The first one - reduction of water pollution from point sources. There are 14 wastewater treatment plants in main cities under construction now. After finishing construction of treatment facilities in the main cities of Lithuania (Kaunas mechanical treatment part, Vilnius, Klaipeda, Siauliai, Palanga biological treatment plants) the amount of pollutants (BOD) discharged will decrease in comparison with 1989 by 70% . In this case 81% of all contaminated wastewater will be treated according to the standard quality, 18% - inadequately treated and 1% will remain untreated in Lithuania.

The financing of capital investments for the improvement of water quality from the State budget was confirmed by the Decision of the Supreme Council of the Republic of Lithuania "On Implementation and Financing of Environmental Protection Programmes in 1992". According to this document the construction of Vilnius, Kaunas, Klaipeda, Siauliai and Palanga waste water treatment plants Is of state significance. So they are of the highest priority in Lithuania. As all Lithuanlan rivers are in the Baltic sea catchment area, Lithuanian inner priorities coincide with these set up by HELCOM. This makes abilities to put out "hot spots" easier.

Considering the present situation, the Lithuanian Government allocates quite a number of means for environmental purposes. It was allocated approximately 3% or 36 million litas for expansion of the waste water treatment facilities in the State budget for this year. According to our calculations, about 100 million litas are needed for these purposes . So it is evident, that the state budget covers only the third part of the sum needed and we have to find additional financing sources.

Lithuania has used the aid of other states or international otganizations by now. As it is known, Pre-Feasibility Study of the Lithuanian Coast and the Nemunas River Basin as well as bankable projects of the highest priority hot spots were carried out. The further stage requires dapltal investments, the main source of which are the loans. Even if it was possible to get loans for all hot spots, it would be unrealistic to expect the Government guaranties. Therefore, an example of the Swedish aid In the form of the subsidy, demonstrates the way of the most effective allocation of means on the Baltic scale,

Since the Pre-feasibility Study of the Lithuanian Coast and Nemunas River Basin was completed in the beginning of the 1992, where list of hot spots had been presented, some changes have occurred. For example, construction of Kedainiai waste water treatment plant was completed last year and now this plant operates according to all requirements, also there Is no waste water coming to this plant from biochemical industry in this town as industry's operation has stopped. Consequently, Kedainiai Biochemical plant as spot isn't so hot any more. Due to the general economical changes the latter plant and Klaip ≤ da Cardboard Factory are reforming their production and seeking partners for joint production of new products.

Another municipal point - Marijampole waste water treatment plant - is no longer hot spot also as (1) construction of this plant was finished and (2) Marijampole's Sugar

Plant, which directed its waste water to the municipal. plant, now is constructing its own biological waste water treatment plant.

Despite of the changes the main problem - pollution from the biggest cities of Lithuania - remains.

In this case we see two possibilities to solve this problem and both of them have to be used :

1) to improve the water supply and sewerage system management (to change the order of setting up water charges, to solve the problem of ownership, to increase the rights and responsibility of municipalities on environmental protection);
2) to use assistance from the other states or international financial institutions.

Economical situation and the acute social problems do not allow to increase the water charges considerably. It means, that even if it was possible to get loans for all the hot spots, it is difficult to create appropriate mechanism for the returning.

Recent estimates have been presented in Lithuania that more than 50% of the total load of nitrogen and phosphorus reaching the Baltic Sea, primarily via the Nemunas and Minija rivers, origin from agricultural activities. In addition; the excessive use of fertilizers presents a threat to groundwater resources, and may also have an impact on the diversity and composition of flora and fauna.

The situation outlined above has led the Environmental Protection Department end the Ministry of Agriculture of Lithuania to the study with the overall aim to advise on the ways of reducing the environmental impact from agriculture, with special emphasis on agrochemicals.

Therefore, in 1992 the Environmental Protection Department of Lithuania and the Ministry of Agriculture with experts from COWIconsult (Denmark) have prepared the project, in which the present problems related to the use of agrochemicals in Lithuania were analyzed.

The study consists of two parts: a main study and a case study in the Minija river basin.

The first phase of the main study is finished already. Based on the results obtained, central environmental problems will be identified for more thorough consideration in phase 2 of the study. Danish and other relevant European experience, environmental regulation and the use of agrochemicals will be reviewed and evaluated with special emphasis on the parts pertinent to the identified problems in Lithuania. The environmental problems of agrochemicals will be assessed further more in detail.
In phase 3, recommendations for the future use and regulation of agrochemicals will be elaborated for a number of scenarios of the development of the agricultural sector in Lithuania. An extension system based on Danish experience will be outlined too.

This is only one example of collaboration with foreign countries. On the whole the G-24 Group countries fund substantial technical and financial assistance to Lithuania on a bilateral basis. The Nordic countries (especially Denmark) take the lead.

During the last two years Lithuania had 12 projects in environmental field financed by Danish Government (approx. 20 million DKK), 4 projects - with Sweden (approx. 5 million SEK).

Lithuania have already got 1.5 million SEK and 1 million DKK from Nordic Investment Bank for Pre-Feasibility Study of the Lithuanian Coast and the Nemunas River Basin.

In order to organize better coordination and use of money the EPD set out the priorities for further cooperation concerning the environment. Medium-term objectives include:
1) wastewater treatment;
2) the creation of hazardous waste treatment capacity;
3) the cleaning-up of contaminated sites;
4) disposal of radioactive waste;
5) the creation of monitoring system;
6) reduction of SO2 emissions;
7) restoration of the Baltic Sea salmon resources.

It is also important to treat small amounts of wastewater generated in households located in countryside. The same is true for specific pollutants generated in industrial enterprises.

On the Implementation of the Joint Baltic Sea Comprehensive Environment Action Programme in Latvia

The characterization of the Joint Baltic Sea Comprehensive Environment Action Programme (JCP) implementation status in Latvia first of all needs to point out some factors affecting the implementation process in this year, such as a low rate of privatization process, the establishment of the Governmental Property Fund instead of the Ministry of Industry and Energetics, the cardinal reorganization and reform of the governmental structures.

The former Environmental Protection Committee of the Republic of Latvia was abolished and instead of it the Ministry of Environment and Regional Development has been established. A lot of former Committee's functions are transferred and new ones from different reformatted ministries taken in addition. The liaison network existing till this time is changed and new one is being under construction. However this process is only developing now and it is early to make conclusions.

As regards the JCP implementation work it is necessary at first to mention the great volume of work done for hot spot identification. The main part of this work is reflected in "Prefeasibility study of the Gulf of Riga and the Daugava River Basin" (1991) (financed by Denmark and Sweden).

Analyzing the list of our hot spots (no.37-no.48, see Appendix) it is obvious that most part of them raised as result of out of date industrial technologies. From another hand such hot spot as agricultural runoff have spread almost over the all territory of Latvia.

Important amount of work has already done for solving this problem, for example "Liepaja city and Harbour" - Treatment of wastewater and oil combating. To our opinion Liepaja could be named as the Hot Spot '93.

At Liepaja in some kind we have an unique situation for Latvia in the process of problem solving because the financial support here is given in several levels – international , national and municipal. It covers the whole region of Liepaja coastal area and having international character and going in Lithuanian territory is supported by World Bank. This gives us a good practice in planning financing technic too. In this case not only the waste water treatment and oil combating are going to be solved but also waste management, energetics and coastal area ecosystem conservation problems.

As regards situation with wastewater treatment plants, there is so named Phase II of the Riga wastewater treatment plants. This hot spot has several non solved technical problems,for example, Riga Centre District Wastewater Pumping Station, sewerage system construction, unsolved rainwater problem and etc. This project is supported by Sweden – Stockholm Waten (BITS). France is going to take part in transformation of Riga municipal enterprises according to rules of market economy.

It must be pointed out that lot of small towns in Latvia as well as great number of Latvian enterprises established in the period of unsustainable development are with warned-out and ineffective wastewater treatment plants and all of them are waiting for solution these items in nearest future if our goal is a better environmental situation in the Gulf of Riga.

As we named the Liepaja as Hot Spot '93, the our Hot Spot '94 is Daugavpils, the second greatest Latvian town on the River Daugava coast near the Eastern boarder of Latvia. This hot spot as well as all others very much needs the project proposal and solving of problems similar to Liepaja hot spot in appropriate way. However, Daugavpils is not situated on the Baltic Sea coast line. It resulted in lack of financial resources for problem solving and we are taking all possible efforts to change the attitude of possible investors.

The analysis of hot spot list discovers a number of hot spots industrial enterprises within which especially must be pointed out those engaged in galvanization processes. On one hand it seems the question would be solved by the construction of several big enterprises especially for galvanization, on another hand in the future a food production, wood processing and building material industry will develop and it is necessary to forecast the rising problems. One of such examples is the modern waste water treatment plant in Liepaja Meat Factory construction of which was carried out by support of Italy.

Another problem – the mobilization of financial resources for hot spots. Our present experience in the case of Liepaja concerning this matter gives us some hope for solving other hot spot problems too. However our practice in financial technic planning necessary for this is not sufficient but we hope to manage these items.

These problems are common for all East European countries and we hope the necessary help will be materialized according to Lucerne minister conference Declaration and other documents approved in the Conference.

As regards the future we hope for market economy transforming municipal enterprises, for reconstruction and optimization of the existing wastewater treatment plants and developing of wastewater management that would eliminate our main problems.

In this crucial period for Latvia it is necessary to consider some activities important for JCP implementation:

– development of environmental management capacity;

– support for institutional reforms in the area of municipal water and waste water services;

– use of economic instruments for environmental policy;

– market-economy oriented regulations in environmental policy;

- organizing of Environmental Enforcement Programme;
- mobilization of local funding;
- development of a system for environmental monitoring;
- the working out of the National Environment Programme;
- management of critical ecosystems.

APPENDIX

Latvian HOT Spots According JCP

37. Gulf of Riga/Estonia-Latvia/ Environmental Management Programme

Total Cost:	105	Million ECU
Investment Cost:		
Foreign:	11	Million ECU
Local:	94	Million ECU
Operating Cost:	tbd	Million ECU/year

38. Gulf of Riga/Sloka Pulp and Paper Mill/Waste water treatment and air pollution control

Total Cost:	72	Million ECU
Investment Cost:		
Foreign:	72	Million ECU
Local:	0	Million ECU
Operating Cost:	tbd	Million ECU/year

39. Gulf of Riga/Olaine Latbiofarm Pharmaceutical Plant/ Waste water treatment and air pollution control

Total Cost:	19	Million ECU
Investment Cost:		
Foreign:	19	Million ECU
Local:	0	Million ECU
Operating Cost:	tbd	Million ECU/year

40. Gulf of Riga/Agriculture and Livestock Farming/Agricultural runoff programme for Latvia.

Total Cost:	200	Million ECU
Investment Cost:		
Foreign:	20	Million ECU
Local:	180	Million ECU
Operating Cost:	tbd	Million ECU/year

42. Daugava River Basin/ Riga Wastewater Treatment Plant- Phase II/ Treatment of municipal and industrial wastewater.

Total Cost:	62.5	Million ECU
Investment Cost:		
Foreign:	50	Million ECU
Local:	12.5	Million ECU
Operating Cost:	tbd	Million ECU/year

43. Daugava River Basin/VEF Plant – Riga/ High heavy metal content in wastewater.

Total Cost:	tbd	Million ECU
Investment Cost:		
Foreign:	tbd	Million ECU
Local:	tbd	Million ECU
Operating Cost:	tbd	Million ECU/year

44. Daugava River Basin/RER Plant - Riga/ High heavy metal content in wastewater.

Total Cost:	tbd	Million ECU
Investment Cost:		
Foreign:	tbd	Million ECU
Local:	tbd	Million ECU
Operating Cost:	tbd	Million ECU/year

45. Daugava River Basin/Various industrial plants- Riga/. Wastewater treatment, waste management, air pollution control.

Total Cost:	tbd	Million ECU
Investment Cost:		
Foreign:	tbd	Million ECU
Local:	tbd	Million ECU
Operating Cost:	tbd	Million ECU/year

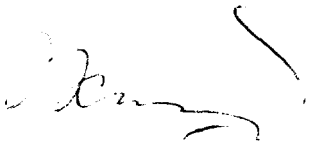
46. Daugava River Basin/ Daugavpils Wastewater Treatment Plant/ Treatment of municipal and industrial wastewater.

Total Cost:	38.8	Million ECU
Investment Cost:		
Foreign:	31	Million ECU
Local:	7.8	Million ECU
Operating Cost:	tbd	Million ECU/year

48. Latvian Coast/Liepaja City and Harbour/ Treatment of municipal and industrial wastewater, oil combatting..

Total Cost:	25	Million ECU
Investment Cost:		
Foreign:	15	Million ECU
Local:	10	Million ECU
Operating Cost:	tbd	Million ECU/year

From the 132 JCP hot spots 10 are situated in Latvia (one of them shared with Estonia). Estimated preliminary investment costs for them are 427,3 million ECU for the next twenty years. Seven of these environmental hot spots in JCP are named as priority hot spots which is disputable now taking into consideration the elimination of industrial production and lack of financial resources in Latvia . From our point of view only Liepaja and Daugavpils waste water treatment plants are of high priority for JCP now as well as the agricultural runoff programme for Latvia.



Andris KRIKIS

Latvian HELCOM PITF member

HELCOM SEMINAR
for Experts from Estonia, Latvia, Lithuania and Russia
on the implementation of HELCOM arrangements,
other international instruments and related matters

Riga, Latvia

30 August - 3 September 1993

Main lectures in the field of the Environment Committee (EC)

HELCOM SEMINAR FOR EXPERTS FROM ESTONIA, LATVIA, LITHUANIA AND RUSSIA ON IMPLEMENTATION OF HELCOM ARRANGEMENTS, OTHER INTERNATIONAL INSTRUMENTS AND RELATED MATTERS

Riga, Latvia 30 August - 3 September 1993

Introduction to the work of EC and its subsidiary bodies, Environment Committee in general

Dr. Niels Peter Rühl
Chairman of the Environment Committee

Dr. Eeva-Liisa Poutanen
Environment Secretary of the Helsinki Commission

Tasks of the Environment Committee

In 1990 the tasks of the Scientific-Technological Committee (STC) were divided between the Environment Committee (EC) and the Technological Committee (TC). The duties of EC are based on the Articles 5, 6, 9, 10 and 16 of the 1974 Convention. In general this means that EC is responsible for collecting and reviewing scientific and environmental data and knowledge pertinent to the goals of the Convention, for elaborating and periodically reviewing cooperative monitoring programmes for marine environment, for assessing the state of the marine environment of the Baltic Sea, of airborne pollution depositions and estimations of the levels of relevant radionuclides in the marine environment as well as estimations of the amounts of discharges of radionuclides.

In order to be able to cover the multi-disciplinary duties of EC the tasks have been divided between different expert groups. After division of STC the Group of Experts on Airborne Pollution of the Baltic Sea Area (EC EGAP), the Group of Experts on Monitoring of Radioactive Substances in the Baltic Sea (EC MORS) and the Microbiological Working Group continued their work under EC. At the first meeting of EC the priority tasks were identified for the near future and therefore, some additional ad hoc expert groups were established in 1990. These groups were: ad hoc Working Group on Coastal Assessment, ad hoc Working Group on the Baltic Sea Sediment Baseline Study, ad hoc Working Group on Chemical Quality Assurance and ad hoc Working Group on Dredged Spoils. The number of groups was extended in 1991 by establishing ad hoc Working Group on Biological Quality Assurance, Phytoplankton Expert Group and ad hoc Working Group on Coastal Monitoring of the Baltic Sea and in 1992 by establishing Working Group on Nature Conservation and Steering Group for the Coordination of the Third Periodic Assessment.

As can be seen most of the duties given to EC are related to joint monitoring and assessment activities and they form an important part of the cooperation among the Baltic Sea States. The terms of reference of EC as adopted by HELCOM 11 in 1990 are attached to this presentation.

Working strategy of EC

The general goal of EC is to provide a basis for decisions of the ministers and administrators, who are considering priorities of necessary actions to be taken to protect the Baltic Sea. From the EC point of view this is made by observing long-term trends in the ecosystems. Concentrations of selected determinants are measured in sea water, sediments and biota.

There is a close cooperation between EC and TC and also with other subsidiary bodies of the Commission. EC tries to document all positive or negative changes in the marine ecosystem which might be a result of environmental protection measures taken or a result of natural variations, while TC takes the necessary action to reduce pollution load to the sea, e.g. through appropriate recommendations.

Since from the very beginning all Contracting Parties have been involved in all monitoring and assessment activities. Each Contracting Party has been invited to nominate their contact persons to all working groups and expert groups. The nominated contact person is responsible for national distribution or collection of appropriate information. This is very important, e.g. when periodic assessments are under preparation, since the joint monitoring data has always been supplemented with additional data from different research programmes. This concerns especially data on toxic, harmful organic substances which are very complicated to analyze and require special expertise and equipment. One of the Contracting Parties nominates a convener or a chairman for the working group, being responsible for the overall coordination of the work. This country acts as a Lead Country for the working group. Through this system a unique network of scientists and administrators has been developed between the Baltic Sea States allowing very constructive cooperation between experts from different countries and institutes.

For the assessments and evaluations it is extremely important that the data collected by individual countries and laboratories is as reliable and comparable as possible. Up to now all monitoring programmes have been implemented in several stages. The first stage has always been more or less experimental in character and has been serving as a pilot programme comprising a limited number of stations and parameters. The monitoring programme has then been improved taking into account the experience gained during the previous stages. The station network has been improved and also the number of routine measurements has increased during the years. At present the Baltic Monitoring Programme for the open sea is under revision, the revised monitoring programme for airborne pollution was adopted by the Commission earlier this year, the monitoring programme for radioactive substances will be reviewed along the preparation of the joint evaluation report within a few years and the elaboration of the joint coastal monitoring programme will start in a near future.

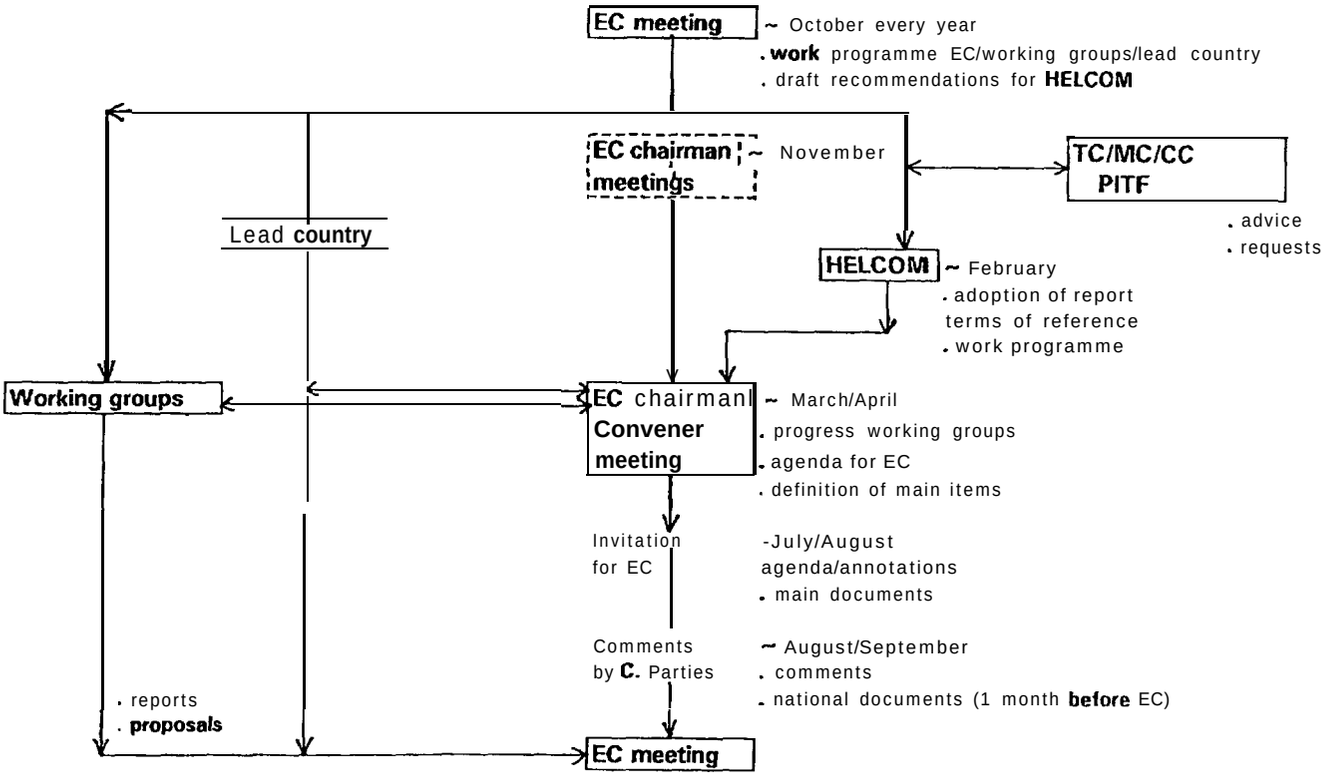
The only way to improve the data quality and reliability is to arrange joint intercalibration/intercomparison exercises either on research vessels or among different laboratories. In this work cooperation with other international organizations has played a key role. Especially cooperation with International Council for the Exploration of the Sea (ICES), Baltic Marine Biologists (BMB), United Nations Economic Commission for Europe's Cooperative Programme for Monitoring and Evaluation of the Long-range Transmission of Air Pollutants in Europe (UN ECE EMEP) and International Atomic Energy Agency (IAEA) is worth mentioning in this context.

Some of the special topics have been devoted to Lead Countries. Seal matters are a good example of this kind of approach. The Lead Country collects information on the actions taken by all Contracting Parties and based on the national information makes a compilation with proposals for further actions for consideration of the appropriate working groups or straight for the Committee for further submission to the Commission. In order to get good results this approach requires, however, a very active role of the Lead Country and maybe also a considerable contribution by fewer experts to the work compared to the working group approach, where the duties can be more easily divided between the experts from several countries.

The 1992 Helsinki Convention brings a whole new aspect to the activities of the Commission and its Environment Committee namely, the nature conservation and biodiversity issues. Earlier this year the 14th meeting of the Commission endorsed the proposal for the work programme for nature conservation which will be the bases for the duties and activities of the special working group under EC, i.e. EC-Nature.

All subsidiary bodies of EC represent special expertise which is definitely needed also in future in order to be able to cover the very wide multi-disciplinary activities, More detailed description of the recent activities of the groups will be provided during this seminar.

Working Structure



TERMS OF REFERENCE OF THE ENVIRONMENT COMMITTEE (EC)

A. The duties of the Environment Committee (EC) of the Baltic Marine Environment Protection Commission are:

a) to advise the Commission in discharging its duties under Article 13 of the Helsinki Convention, especially in respect of matters related to Articles 5, 6, 9, 10 and 16 of the Convention, and in particular:

i) to collect and review scientific and environment data and knowledge pertinent to the goals of the Convention and to promote the exchange of information:

ii) to elaborate and periodically review cooperative monitoring programmes concerning the marine environment, airborne pollution and radioactive substances of the Baltic Sea, and to elaborate methods, models and techniques, taking into account the need for intercalibration and standardization;

iii) to assess the state of the marine environment of the Baltic Sea;

iv) to elaborate evaluations, deposition estimates and relevant emission inventories for the abatement of airborne pollution to the Baltic Sea, and to elaborate proposals for the Commission as appropriate, taking into account the state of the marine environment;

v) to elaborate estimations of the level of relevant radionuclides in the Baltic Sea and relevant release inventories, and to elaborate proposals for the Commission as appropriate, taking into account the state of the marine environment and the risks for human health;

b) to invite, when deemed necessary, the other Committees of the Commission to consider specific matters related to their mandates;

c) to request its subsidiary bodies, when deemed necessary, to invite relevant subsidiary bodies of the other Committees to consider specific matters related to their mandates;

d) to advise the Commission on matters related to HELCOM Bibliography;

e) to advise on any other matter remitted to it by the Commission;

f) to report to the Commission on its activities and to submit its report to the other Committees of the Commission for information and as appropriate, for comments;

B. The EC may, subject to approval by the Commission, establish sub-groups and temporary groups for the consideration of matters related to its mandate;

C. The EC may cooperate, when authorized by the Commission, with competent international bodies in the field of science and technology related to its mandate;

D. The Environment Secretary of the Commission shall ex officio serve as the Secretary of the EC.

June 1993

HELCOM SEMINAR
Riga, Latvia
30. August - 3. September 1993

EC EGAP
Expert Group on Air Pollution

Niels Z. Heidam, Chairman
National Environmental Research Institute, Denmark

The Duties of EGAP

According to the Terms of Reference the main duties of EGAP are

A. To advise the Environment Committee on monitoring and assessment of the state of airborne pollution in the Baltic Sea and cooperate with other international organisations that are concerned with long range transport and deposition of air pollution.

B. To advise the EC on the need for measures to reduce emissions of air pollution that influence the Baltic Sea.

C. To prepare emission inventories for harmful substances that are deposited from the atmosphere to the Baltic Sea in significant quantities.

The Aims of EGAP Monitoring

To fulfil1 these duties the participating countries have set up a network of monitoring stations in the Baltic Sea area. The aims of this monitoring programme are

1. To collect and provide data that enable the dry and wet deposition of airborne pollutants and their variation in time and space over the Baltic Sea to be estimated. The anthropogenic pollutants of concern are those that may cause eutrophication or toxic bioaccumulation.

2. To measure on a monthly basis - from at least one station in each country - concentrations in air and precipitation of such eutrophicating or bioaccumulating components.

3. To use and encourage development of atmospheric transport models to obtain estimates of atmospheric pollutant deposition also over the open sea for which no measurements exist.
4. To participate in and encourage collection of information on emissions from sources both inside and outside the Convention Area in cooperation with other international organisations.

These duties are - as requested - in many respects carried out in cooperation with other similar international organisations, in particular EMEP, the European Monitoring and Evaluation Programme for transboundary air pollution in Europe carried out by ECE, UN's Economic Commission for Europe and PARCOM, the Paris Commission, which is similar to HELCOM but concerned with the North Sea.

The Work of EGAP

Stations and Measuring Programme

The network of EGAP stations in 1990 is shown in the map in Figure I. Since 1990 some new stations have been established, sometimes replacing old ones, so that the network in 1993 consists of 25-30 stations distributed over the HELCOM member states. They are situated in various types of rural areas so as to avoid the influence of local industrial sources. Measurements may nevertheless be influenced by local contributions and may, especially for ammonia, vary considerably depending on the surroundings of the sampling site.

The monitoring program is based on monthly measurements of the routine minimum requirement compounds, which are listed in a HELCOM Recommendation on the Monitoring of Airborne Pollution Load. The current programme is specified by HELCOM Recommandation 14/1 adopted in 1990 and is shown in ***Table 1.*** The programme is in many respects similar to those run by EMEP and PARCOM. The monitoring coverage of these compounds over the years is shown in ***Table 2.***

Results from the network are reported by the Contracting Parties to a central database. That permits data to be pooled to give overviews of the pollution. As an example the

average concentrations of nitrogen in precipitation in the north and the south part of the Baltic Sea ate shown in Figure 2.

The HELCOM Recommandation 14/1 also requires the participating institutions to forward descriptions of the methods used for sampling and analysis. These descriptions are to be updated every 3 years and they are part of a common quality assurance activity which also calls for additional measurements of marine tracers (section D in table 2).

The quality assurance also consists of international field intercomparisons generally carried out in conjunction with ECE_EMEP and/or PARCOM (Helsinki *Commission 1992).* EGAP has at the most recent meeting in May 1993 asked these two organisations to participate in yet another exercise concerning the trace metals in precipitation.

Models

The atmosphere is the most efficient medium for transport of pollution from sources to receptor. Airborne pollutants can within a few days travel over distances of 5000 km or more. Air pollution knows no borders.

As a result North European marginal seas such as the North Sea and the Baltic are significantly affected by atmospheric long range transport of man made emissions of pollutants. Therefore the results from the monitoring programme of EGAP which is limited to the Baltic Sea cannot alone give a complete picture of the state of air pollution and its origin in remote sources. This knowledge is neccessary if control strategies for the reduction of the atmospheric deposition fluxes of pollutants to the Baltic Sea are to be developed.

The only way of delineating the atmospheric transport pathways and hence the emitter-receptor relationship is through numerical modelling. With modem computer technology it is now possible to carry out calculations that not only cover a whole continent such as Europe but also include the complex physical and chemical processes that control the transport, transformation and deposition of air pollutants.

For long range transport of atmospheric pollutants and long term averages of concentration and deposition fields, ***Lagrangian*** *models* have proved to be an appropriate tool. The mass balance for pollutants is calculated for air parcels following the motion along air trajectories in the lower few thousand metres of the atmosphere.

The EMEP model of the Meteorological Synthezing Centre_W was one of the first in this category to be developed for operational use (*Iversen et al., 1989, 1990).* It is a one-layer

model where concentrations are calculated as averages over the boundary layer and it is receptor oriented, since every six hours 4-day trajectories terminating at selected receptor points are calculated. After comprehensive tests and validations there are now 10 chemical components in the model [NO, NO_2, PAN, HNO_3, NO; NH_4NO_3, NH_3, SO_2, $SO_4^=$, $((NH_4)_2SO_4+NH_4HSO_4) / 2 = (NH_4)_{1.5}SO_4$].

The model is being used on a routine basis for the assessment of transboundary pollution fluxes and deposition of sulphur and nitrogen compounds over Europe. The results show that the concentration and deposition fields are predicted reasonably well. In ***Figure 3 are*** shown results for total nitrogen deposition fluxes in the Baltic Sea area in 1988 from model calculations that include all European sources. The total effect is that the deposition falls off towards the north, i.e. with increasing distances from the continental sources.

The model has in sligthly modified form been used to calculate deposition of trace metals to the North Sea and the Baltic Sea, the difference being that no chemical or physical transformation is assumed for these pollutants ***(Petersen et al., 1989).***

Eulerian models constitute another valuable model approach in which calculations are carried out in 3-dimensional grid points. The main advantages of Eulerian modelling are that complex atmospheric processes can be investigated in detail and that episodic events can modelled. Eulerian models therefore constitute a supplement to the Lagrangian approach as research tools for improving the reliability of model calculations.

The MSC_E of EMEP has developed and tested a hybrid ***Lagrangian-Eulerian*** model for routine calculations of horizontal transport of air pollution. The application of the Eulerian scheme is useful for modelling the non-linearity of chemical processes, of washout, and of vertical wind variation.

Emissions

Emissions of the pollutants measured in the EGAP Monitoring programme are needed for two purposes.

The first one is that they constitute essential input data for the dispersion models. No result from any model can be better than the quality of the input data and therefore good emission data are needed.

The second purpose of emission data is to evaluate the development of emissions which are to be limited according to international agreements reached in HELCOM, ECE or PARCOM.

Therefore EGAP has recently proposed a work plan for 1993-1997 which has as one of its main points the establishment of emission inventories with a focus on the Baltic Sea states. The work will be carried out within the framework of international cooperation because in recent years HELCOM, ECE and PARCOM and other organisations, notably the European Communities, EC have agreed on common guidelines and procedures to set up emission inventories. This will ensure that the inventories are of good and equal quality and that they can be compared from nation to nation.

One of the major achievements is that these guidelines now specify that pollution sources should be classified in the 11 categories listed in ***Table 3.*** Another example of how emissions are to be reported is shown in ***Table 4.*** Here emissions are given not only by category but also by geographical location as specified by the coordinates of an element of the European gridnet used for model calculations.

Cooperation within HELCOM

There is a strong need for coordination and exchange of information between the various committees and groups that have been set up by HELCOM. In the case of EGAP several groups need the information EGAP can provide on the levels and depositions of pollutants in the Baltic Sea, the development in time and the geographic distribution. But EGAP also needs information from other HELCOM groups. In particular there is a need to gather information on emissions that are provided in some of these other groups. As an example the Maritime Committee has set up an air pollution group MC AIR that has been given the task to collect emission data from ships travelling the Baltic Sea. Emissions from ships have in fact been found to be an important air pollution source for the oceans and coastal areas. That information is therefore very important for obtaining good model results over the open sea.

Another example is information on industrial processes and the technological possibilities to reduce their emissions. That information is accumulated by the Technological Committe and its subgroups on point and diffuse sources TC POINT and TC DIFF and it is impor-

tant for setting up good emission inventories. In particular it is neccessary that the pollution sources are classified correctly into the source sectors that are defined in the international agreements. EGAP and TC have accordingly agreed to exchange observers at their meetings.

International Cooperation

As indicated at several occasions HELCOM and EC EGAP have developed extensive cooperative links with UN_ECE/EMEP, PARCOM and EC. This is also reflected in the fact that usually these organisations are represented by observers at meetings of the various bodies, including EGAP. In a similar way coordination and information exchange take place with other international organisations such as ICES, International Commission on Exploration of the Sea and WMO, UN's World Meteorological Organisation.

The situation with respect to ECE/EMEP is special because a formal agreement has been reached according to which HELCOM may enter into contracts with EMEP's international Chemical and Meteorological Centers that take care of data storage and model calculations, respectively. EGAP has in fact drawn up a contract with the Chemical Coordinating Center in order to have the EGAP monitoring data stored in a database at this center in Norway. An informal cooperation with the Meteorological Synthesizing Centers East and West has also been established so that also model calculations are available for assessments of the air pollution situation in the Baltic Sea.

Assessments

The results from the monitoring programme and the model calculations are used to assess the state of air pollution in the Baltic Sea. These assessment are carried out regularly every few years so that they can be used in the comprehensive assessments of the total state of pollution in the Baltic Sea - the HELCOM Pollution Load Compilations.

The most recent assessment performed by EGAP (Helsinki *Commission 1991)* covers the S-year period 1986-1990 and it was mainly focused on the atmospheric deposition of nitrogen. One of the major results was the estimates of wet deposition fluxes of nitrogen to various subbasins of the Baltic Sea which are shown in *Figure 4.* The north-to-south gradient is again clearly seen.

Model results for the total deposition of oxidized nitrogen emanating in different European countries are shown in ***Table 5.*** It can be calculated that the HELCOM countries are responsible for about 60 % of the deposition.

The best estimates of the total deposition of nitrogen was found by combining monitoring results and model calculations. The results are shown in ***Table 6.***
The general conclusion of this assessment was that

> **A reasonable estimate for the total deposition of nitrogen to the Baltic Sea in the latter half of the 1980's thus seems to be**
>
> **300 ± 30 kiloTonnes N/yr**

This amounts to at least 30 % of the total nitrogen burden of the Baltic Sea.

References

Helsinki Commission 1991.

Airborne Pollution Load to The Baltic Sea 1986-1990.

Baltic Sea Environment Proceedings No. 39.

Helsinki Commission 1992.

Intercalibrations and Intercomparisons of Measurement Methods for Airborne Pollutants.

Baltic Sea Environment Proceedings No. 41.

Iversen, T., J.Saltbones, H.Sanders, A. Eliassen, Ø. Hov. 1989.

Airborne Transboundary Transport of Sulphur and Nitrogen over Europe: Model Descriptions and Calculations.

EMEP-MSC_W Report 2/89.

Iversen, T., Halvorsen, N.E., Saltbones, J., Sandnes, H. 1990.

Calculated Budgets for Airborne Sulphur and Nitrogen in Europe.

EMEP/MSC_W. Report 2/90.

Petersen, G., H. Weber, H. Grass1 1989.

Modelling the Atmospheric Transport of Trace Metals from Europe to the North Sea and the Baltic Sea.

in: ***J.M. Pacyna and B. Ottar*** *(eds):* Control and Fate of Atmospheric Trace Metals. NATO AS1 Series. Series C: Mathematical and Physical Sciences - Vol 268, pp. 57-83. Kluwer Academic Publishers.

Table 1. **Measurement programme of EGAP.**

Eutrophication	*Nitrogen comvounds*
Precipitation	*Ammonium and nitrate ions:* NH_4^+ *and* NO_3^-.
Air	*Gas:* NO_2 *Total phases:* $[HNO_3(g)+NO_3^-(p)]$, $[NH_3(g)+NH_4^+(p)]$.
Bioaccumulation	*Persistent toxic comvounds*
Precipitation and Air	*Trace metals:* **Cu, *Zn, Cd, Pb.***
Precip. only:	***Cr, Ni, As, Hg.***

One or more		***Persistent organics:***	
Carbontetrachloride	CCl_4	***Hexachlorobenzene***	***HCB***
Trichloroethylene	***TRI***	***Hexachlorocyclohexane***	***HCH***
Tetrachloroethylene	***PER***	***Pentachlorophenol***	*PCP*
Trichlorobenzene	***TCB***	***PAH***	***PAH***
Trichloroethane 111	***TCE***	***Dioxins and Furans***	
Xylenes	*XYL*		

Table 2. **Development of the measuring activities 1986-1990**

Constituents	No. of measuring stations				
	1986	1987	1988	1989	1990
A. Nitrogen compounds, routine minimum requirements					
NO_3^- precipitation	**25**	**26**	**25**	**25**	**25**
NH_4^+ precipitation	25	26	25	25	25
B. Nitrogen compounds in air, voluntary/experimental basis					
NO_2 gas	9	8	12	10	9
HNO_3 - gas + NO_3^- - particles	7	6	7	8	8
NH_3 - gas + NH_4^+ - particles	8	6	7	8	8
C. **Trace metals, voluntary/experimental basis *)**					
Pb precipitation	6	7	7	6	4
Cd precipitation	5	6	6	6	4
Zn precipitation	6	7	7	6	4
cu precipitation	0	0	0	0	0
D. Quality assurance					
SO_4^{2-} precipitation	**25**	**26**	**24**	**25**	**25**
Na^+ precipitation	20	19	21	19	23
Mg^{2+} precipitation	19	18	20	14	22
Cl^- precipitation	19	19	18	20	21

*) Routine minimum requirement from 1990

TABLE 3.

Source category[a]	SO_x	NO_x	NMVOCs	CH_4	NH_3	CO
1. Public power, cogeneration and district heating plants	xx	xx	xx	xx		xx
2. Commercial, institutional and residential combustion plants	xx	xx	xx	xx		xx
3. Industrial combustion plants and processes with combustion	xx	xx	xx	xx		xx
4. Non-combustion processes	xx	xx	xx	xx	xx	(xx
5. Extraction and distribution of fossil fuels	xx	xx	xx	xx		xx
6. Solvent use			xx			
7. Road transport	xx	xx	xx	xx		xx
8. Other transport	xx	(xx)	xx	xx		xx
9. Waste treatment and disposal	xx	xx	xx	xx	xx	xx
10. Agriculture			xx	xx	xx	
11. Nature			(xx)	xx		
TOJAL						

[a] Relevant sources are given and major source categories are underlined. The parentheses indicate that the given source category may be a major one for some countries.

TABLE 4.

An example for reporting NMVOCs

X	Y	Major anthropogenic source categories separately			rest of anthropogenic emissions	Grand Total (All anthro categories)
		Category 4	Category 6	Category 7		
X_1	Y_1	xx	xx	xx	xx	xx
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
.	.	.	.	.	.	.
X_n	Y_n	xx	xx	xx	xx	xx

X, Y identify grid elements.
The above reporting is done periodically.
Natural NMVOCs are not requested.

Table 5. **Total (wet and dry) deposition $D_T^{M\_E}$ of Oxidized Nitrogen to the Baltic Sea.**
Model results from MSC_E.
HELCOM member countries are marked with an asterisk (*).

kT N/yr	1988	1989
BE	2.7	2.3
c s	8.0	6.7
DK*	7.3	6.5
FI*	5.4	4.1
FR	7.9	8.2
DD*	9.7	8.8
DE*	33.9	28.9
NL	6.3	5.6
NO	3.2	3.3
PL*	16.4	13.0
SE*	11.9	10.9
SU*	8.0	5.1
GB	21.9	24.3
BAS	2.1	1.7
NOS	1.1	1.2
XEUR	10.3	4.5
IND	7.0	6.9
SUM	163.1	146.6

XEUR: Minor contributors < 1000 tonnes.

Table 6. **Deposition estimates for the Baltic Sea.**

kT N/yr	1988			1989		
Depos.type	Red.N	Ox.N	Tot_N	Red.N	Ox.N	Tot_N
Dry: D_d^X (1980-1986)			60			60
Wet: D_w^X	162	156	318	165	143	308
Wet: D_w^H	174	167	341	185	160	345
Total* : $D_T^{M\_W}$	115	169	284	102	156	258
Total: $D_T^{M\_E}$		163			147	

Figure 1. **Division of the Baltic Sea into sub-basins and the EGAP monitoring sites.**

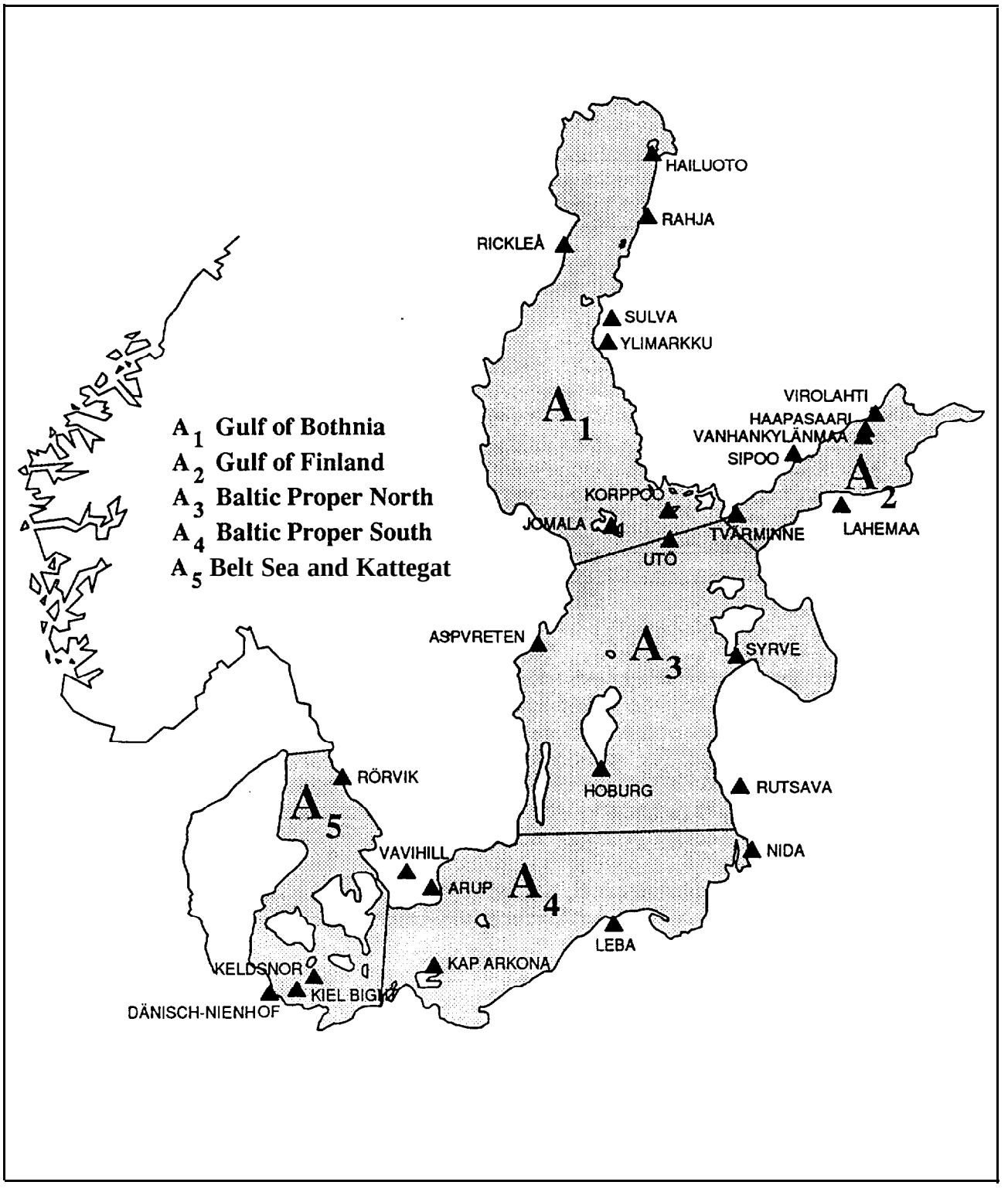


Figure 2. **Annual average nitrogen concentrations in A,, Gulf of Bothnia, and in A,, Kattegat and Belt Sea.**

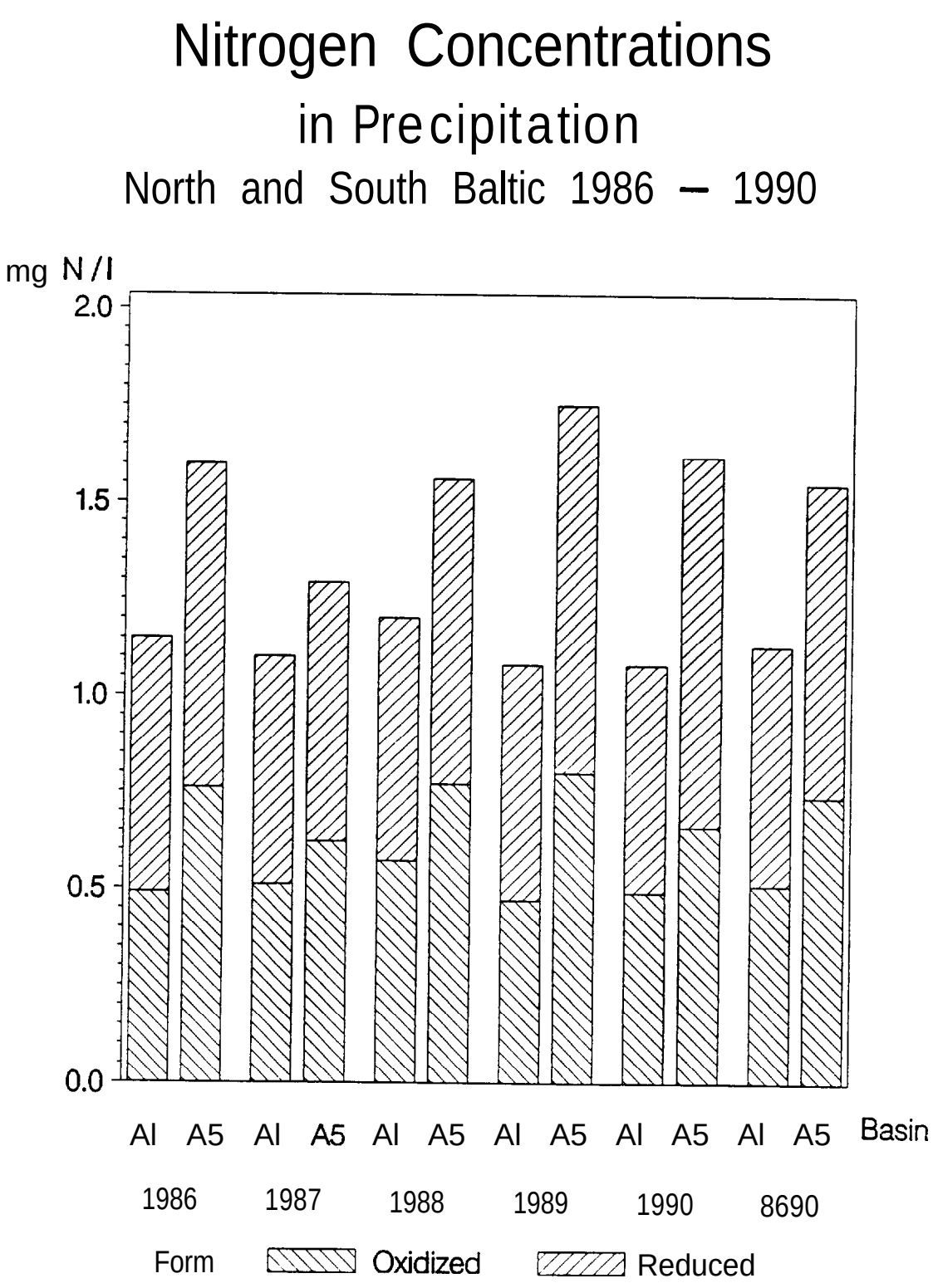


Figure 3. **Model calculations of nitrogen deposition fluxes in the Baltic sea area in 1988.**

Calculations by MSC_W.

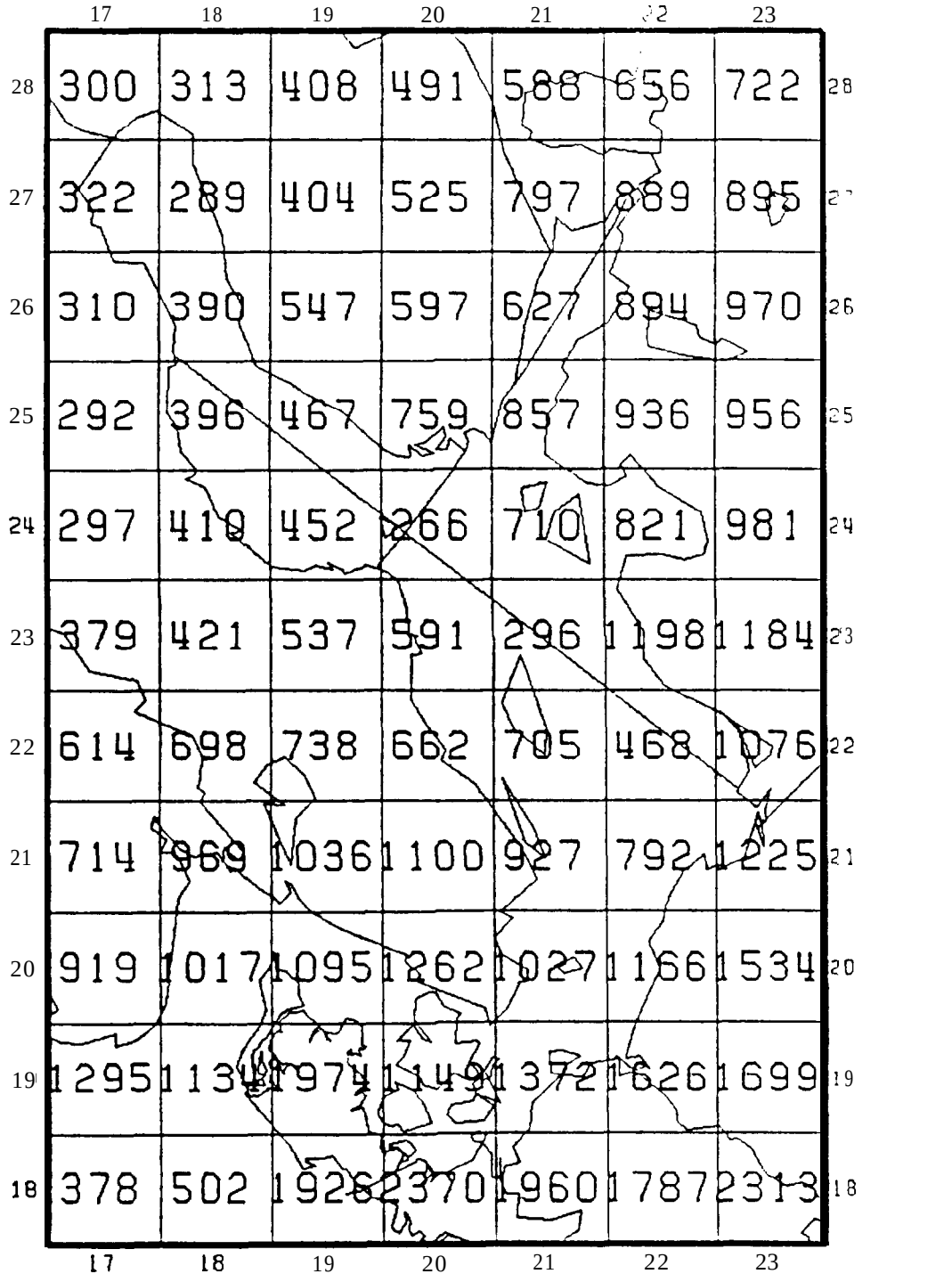
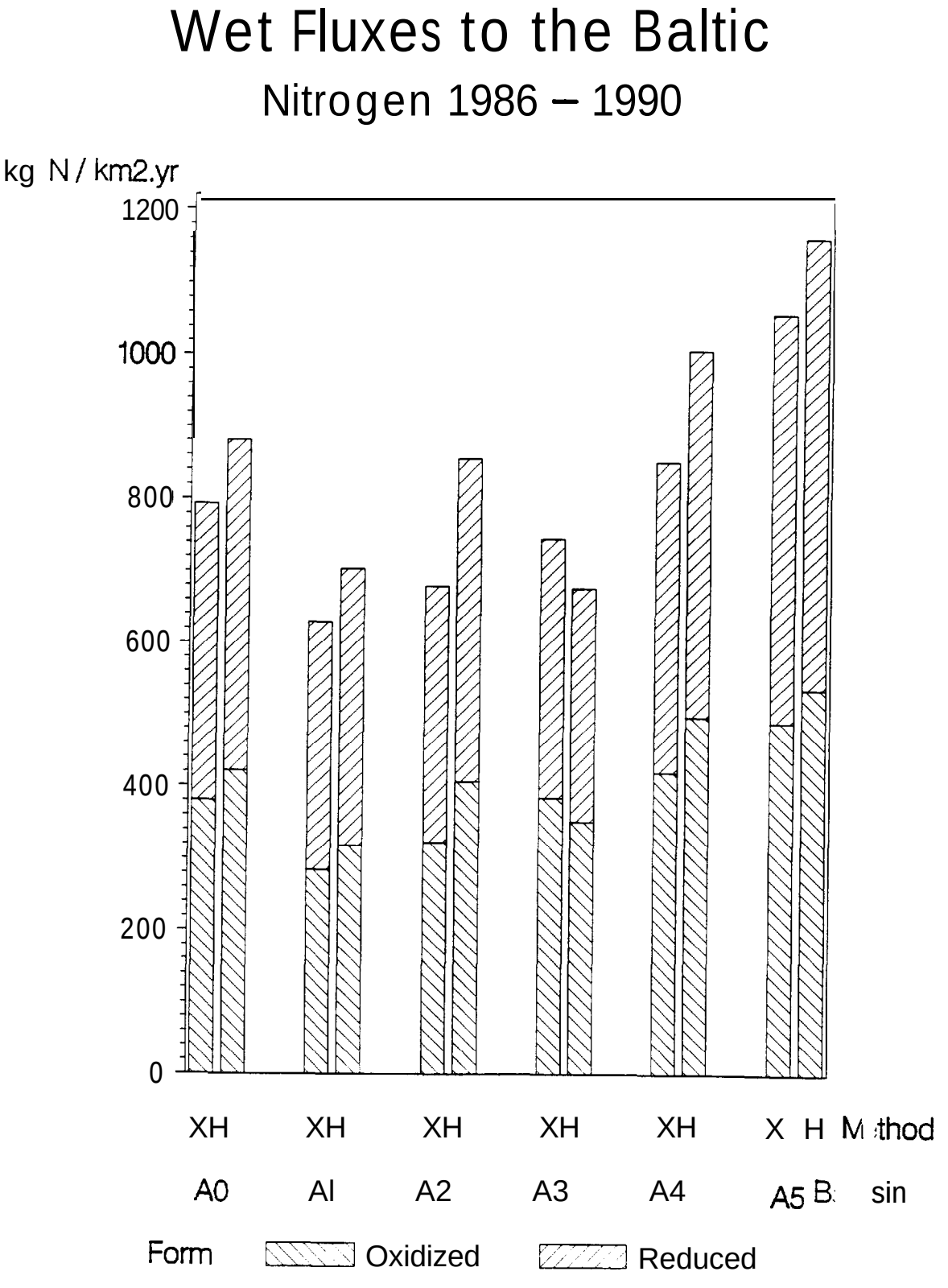


Figure 4. **Average wet fluxes of nitrogen to the Baltic subbasins for 1986-1990.**



MONITORING OF RADIOACTIVE SUBSTANCES IN THE BALTIC SEA

Hartmut Nies
Chairman of EC MORS

Bundesamt fur Seeschiffahrt und Hydrographie
D-20305 Hamburg
Federal Republic of Germany

ABSTRACT

Releases of radioactivity from all kinds of nuclear facilities have to be monitored, because of special concern about these substances for human and the environment. Therefore, the Commission established a permanent group of experts for monitoring of radioactive substances in the Baltic Sea environment. This group continued the work of a Co-ordinated Research Programme of the IAEA from 1981 to 1984 which had studied the behaviour and distribution of radioactivity in the Baltic Sea. The first meeting of the HELCOM group "MORS" took place in Helsinki at the beginning of April 1986, just three weeks before the fallout of Chernobyl deposited large quantities of radioactivity over the northern Baltic. By the existence of this group it was possible to study the distribution of the Chernobyl fallout in the Baltic very intensively in international cooperation.

The group monitors the entire Baltic Sea area by the analysis of water, sediment and biota. The group is going to prepare a Joint Evaluation Report of the data from 1984 to 1991 on all aspects of radioactivity.

INTRODUCTION

The Baltic Sea is the largest brackish water of the world, though it covers a mere 0.1 % of the world oceans. It is unique in many ways, e.g. by its flora and fauna. However, the Baltic is surrounded **by** highly developed industrial countries. Some of the HELCOM Contracting Parties are using nuclear power for electricity production. Those are Germany, Finnland, Lithuania, Russia, and Sweden. Due to its nature as a semi-enclosed sea area, which prevents a rapid water exchange with the world ocean, the Baltic Sea is very sensible for all kinds of pollution. Therefore persistent contaminants will remain for long periods in this area.

Due to their potential harm to humans and biota, radioactive substances are of special concern. Therefore, the spacial and temporal distribution of radionuclides released into the environment has to be monitored in the environment. The Helsinki Commission as the international convention for protection of the Baltic Sea area established a group of experts for monitoring radioactive substances in this sea. This group is now a permanent expert working group under the frame of the Environment Committee (EC).

MONITORING OF RADIOACTIVE SUBSTANCES IN THE BALTIC SEA

In 1980 the International Atomic Energy Agency (IAEA) initiated a Co-ordinated Research Programme (CRP) about the evaluation of the long-term behaviour of radionuclides entering the Baltic Sea, including their transport back to man. This CRP entitled

"Study of Radioactive Materials in the Baltic Sea"

was carried out by scientists from the – at that time – seven Baltic Sea states and from the International Laboratory for Marine Radioactivity in Monaco (IAEA) during the years 1981 to 1984. The results of this CRP provided an excellent knowledge about the levels and the behaviour of artificial radioactivity in the Baltic Sea prior to the reactor accident at Chernobyl. They are reported in a technical document of the IAEA (1).

In March 1985, on its 6th meeting, the Helsinki Commission decided to continue the work of the IAEA under the auspices of HELCOM and to establish a group of Experts on Monitoring of Radioactive Substances in the Baltic Sea (MORS). The Commission further accepted the offer of Finland to act as Lead Country for matters related to radioactive substances. The IAEA was invited to participate in this task as Observer.

The present Terms of References of this group are as follows:

TERMS OF REFERENCES FOR THE GROUP OF EXPERTS ON MONITORING OF RADIOACTIVE SUBSTANCES IN THE BALTIC SEA (EC MORS)

The duties of the Group of Experts on Monitoring of Radioactive Substances in the Baltic Sea are:

a) ***to advise the Environment Committee on matters related to monitoring and assessment of the state of radioactive substances in the Baltic Sea, and in particular:***

   (i) ***to compile available data on radioactive discharges to the Baltic Sea, and to report them to the Environment Committee anually;***

   (ii) ***to collect data from all compartments of the open sea, preferably from "Baltic Monitoring Programme" (BMP) stations, and from coastal areas when appropriate, for the preparation of inventories and for showing trends and to report the results annually to the Environment Committee in order to gain a better understanding of the behaviour of radionuclides in the Baltic Sea;***

   (iii) ***to include radionuclide data into the data bases established by the Commission, both for MORS environmental data and for MORS release data, and to evaluate the data regularly;***

   (iv) ***to evaluate the results and to assess the risks caused by direct discharges as well as long-range transboundary transports of radioactive substances to man and marine life and the radiation burden to the population living around the Baltic Sea, as well as to develop models to predict radiation doses in the event of an accident;***

   (v) ***to ascertain that all aspects of quality assurance of analytical data are covered;***

b) ***to invite, when deemed necessary, other subsidiary bodies of the Committees to consider specific matters of common interest related to their mandates;***

c) ***to advice on matters related to its specific mandate upon request by their subsidiary bodies of the Committees;***

d) ***to report on its activities to the Environment Committee.***

The group of Experts on Monitoring of Radioactive Substances in the Baltic Sea (EC MORS) held its first meeting in Helsinki in April 1986, just about three weeks before the fallout from the accident at Chernobyl deposited large quantities of radioactivity into this sea area. By means of the group MORS, there existed an international expert group, which was able to study the fall-

out of Chernobyl in the Baltic Sea very intensively in international co-operation.

The group proposed a monitoring programme, which should be carried out annually by all contracting parties. It covers the compartments water, sediment, fish, aquatic plants, and benthic animals of all sub-areas of the Baltic Sea. The following list represents the minimum monitoring programme:

Radionuclides to be monitored in the Baltic Sea:

Sample	Obligatory	Voluntary	Desirable Remarks
A. Water	Radiocesium*) Sr-90"")	H-3; Tc-99, Pu-239,240; Am-241; gamma-emitters	Bq/m^3, sal., temperature, sample depth, total depth,
B. Sediment	L-emitters""")	Sr-90; Pu-239,240; Am-241; natural radionuclides (e.g. Po-210)	type of sediment (mud/sand) grain size, water content, oxic/anoxic, density, mass depth (kg m^{-2}), Bq per kg d.w., sample treatm. and storage, sed. rates
C. Fish	γ-emitters***)	Sr-90; natural radionuclides (e.g. Po-210)	species, total fish or organ (fract.) size, age, sex, Bq per kg w.w.
D. Seston/ Aquatic Plants	γ-emitters***)	Sr-90; Tc-99; Pu-239,240; Am-241; natural radionuclides	Bq per kg d.w., species
E. Benthic	γ-emitters***)	Sr-90; Tc-99; natural radionuclides (e.g. PO-210); Pu-239,240; Am-241	Bq per kg d.w. fraction, species

*) Cs-137 and Cs-134, if possible
**) regulary, on a carefully selected number of samples
***) K-40, Cs-137 and other gamma-emitters identified in the gammaspectrum

The results of this monitoring programme are submitted to HELCOM in an agreed data format to be stored in the HELCOM data base which is currently located in the Environmental Data Centre, Helsinki. The data bank can be used for assessing the radioactive burden of the Baltic Sea and the dose to man from the consumption of Baltic Sea food. As an example, fig. 1 gives the present measuring network for seawater of Germany. The monitoring of the various compartments of the Baltic Sea is carried out in each country according to its technical capability and equipment. Finnland, Germany, Poland and Russia carry out a monitoring also at locations remote from land, whereas Denmark and Sweden are more emphasizing on coastal stations. The laboratories involved in the work of MORS are as follows:

Denmark	Risø National Laboratory, Roskilde
Finnland	Finnish Centre for Radiation and Nuclear Safety, Helsinki (STUK).
Germany	Federal Maritime and Hydrographic Agency, Hamburg (BSH) Federal Centre for Fisheries Research (BFA/IFÖ), Hamburg.
Poland	Central Laboratory for Radiological Protection, Warshaw. Institute of Meteorology and Water Management, Gdynia.
Russia	V.G. Khlopin Radium Institute, St. Petersburg.
Sweden	Swedish Radiation Protection Institute, Stockholm. Environmental Protection Agency (Naturvårdsverket), Stockholm.

Release data of nuclear facilities discharging radionuclides into the Baltic Sea, are collected annually and stored in the Finnish Centre for Radiation and Nuclear Safety, Helsinki.

The first comprehensive work of the group MORS was published in 1989 as "Baltic Sea Environment Proceedings" No. 31. It covers the results of the intensive investigations of the participating laboratories about the impact of the fallout from the Chernobyl accident on the Baltic Sea (2) from the year 1986 to 1989.

It was ascertained by the group MORS that the Baltic Sea is the most contaminated marine environment area by the reactor accident at Chernobyl. The highest deposition has been found in the Bothnian Sea, however, due to horizontal advection and mixing of seawater the initial high contamination in the southern Bothnian Sea decreased significantly within two years after the accident. This advection caused increasing contamination in other sea areas, which were less contaminat-

ed by the initial fallout. Figure 2 and 3 display the temporal evolution of the average surface concentration of Cs-134 and Cs-137, respectively. These figures have been prepared by the EDC with the monitoring data of seawater available in the data bank.

Radioactive discharges from nuclear power stations into the Baltic Sea are of extremely low impact. These releases can only be detected in the local vicinity of the power plants. They are of no relevance as far as dose to biota or humans are concerned. Fig. 4 and 5 show the annual discharges of Tritium and Cs-137 from most of the nuclear power stations surrounding the Baltic Sea. These figures have been produced by the Finnish Centre for Radiation and Nuclear Safety, Helsinki, on the basis of the data submitted by the Contracting Parties.

QUALITY ASSURANCE

The group MORS was well aware of the fact that an essential question of the monitoring programme would be the quality of the monitoring data. Therefore, the IAEA with its – now named – Marine Environmental Laboratory (MEL) in Monaco was involved intensively in the work of quality assurance. The MEL carried out some intercomparison exercises on seawater and sediment analyses. It was shown that the quality of the results reported to the IAEA was partly in excellent agreement among the laboratories submitting data for the group MORS.

In summer 1992 an experiment was carried out on a Finnish and a German research vessel to study both the sediment sampling techniques and the analytical methods on different types of sediments. This experiment was named MOSSIE (MORS Sediment Sampling intercalibration Experiment). Almost all MORS laboratories participated in the cruise with their own devices for collection of soft sediments on four locations. The IAEA/Monaco prepared homoginized materials for distribution within EC MORS laboratories and partly for use of a world wide intercalibration. The experiment was initiated, because it has already been shown previously by some of the MORS laboratories **that the** sediment coring technique may influence significantly the final result (3). It is expected that the report of MOSSIE will be ready by end of the year 1994.

FUTURE PLANS

On its 1993 meeting the group MORS started to prepare a Joint Evaluation Report on "Radioactivity in the Baltic Sea 1984 – 1991".

This report is expected to contain all aspects of radioactivity in the Baltic Sea, including the sources of artificial radioactivity from global fallout, discharges from nuclear

power stations and from the Chernobyl accident. The report will describe the monitoring network of the group MORS, the assurance of quality of the data, and the temporal and spacial evolution of artificial radioactivity in the various compartments such as water, sediment and biota investigated by the group EC MORS; the monitoring data will be used to calculate inventories of radioactivity in the Baltic and to model the radiation doses to humans by consumption of marine food from the Baltic. It is expected that this report will be ready by summer 1994.

CONCLUSION

The group EC MORS bases in its co-operation on the experience gained during more than ten years including the IAEA CRP of 1981 to 1985. The group consists of a number of compentent scientists of laboratories from all Baltic Sea States, which were able to study the significant change of the inventory of radioactivity during previous years in excellent international co-operation. It was proved by several intercomparison exercises that the data obtained by this expert group has a very high quality standard. EC MORS is continuing its work as a permanent expert group, in order to be able to detect any harm to humans or biota caused by radioactive substances in the Baltic Sea. Scientists from the new Baltic States are cordially invited to co-operate in this group in the future for exchange of knowledge in the field of monitoring of radioactive substances.

REFERENCES

(1) IAEA, 1986: Study of Radioactive Materials in the Baltic Sea. Report of the final Research Co-ordination Meeting of Radioactive Materials in the Baltic Sea. IAEA-TECDOC-362. Vienna.

(2) Baltic Marine Environment Protection Commission - Helsinki Commission - 1989: Three Years Observations of the Levels of Some Radionuclides in the Baltic Sea after the Chernobyl Accident - Seminar on Radionuclides in the Baltic Sea; 29 May 1989, Restock-Warnemunde, German Democratic Republic, Baltic Sea Environment Proceedings No. 31.

(3) Nies, H., Albrecht, H., Rechenberg, V., Goroncy, I., Dahlgaard, H., Weiß, D., and Brugmann, L., 1990: Intercomparison of Sediment Sampling Techniques by means of Radionuclide and Heavy Metal Analysis. Dt. Hydrogr. Z., 43 (1), 27-53.

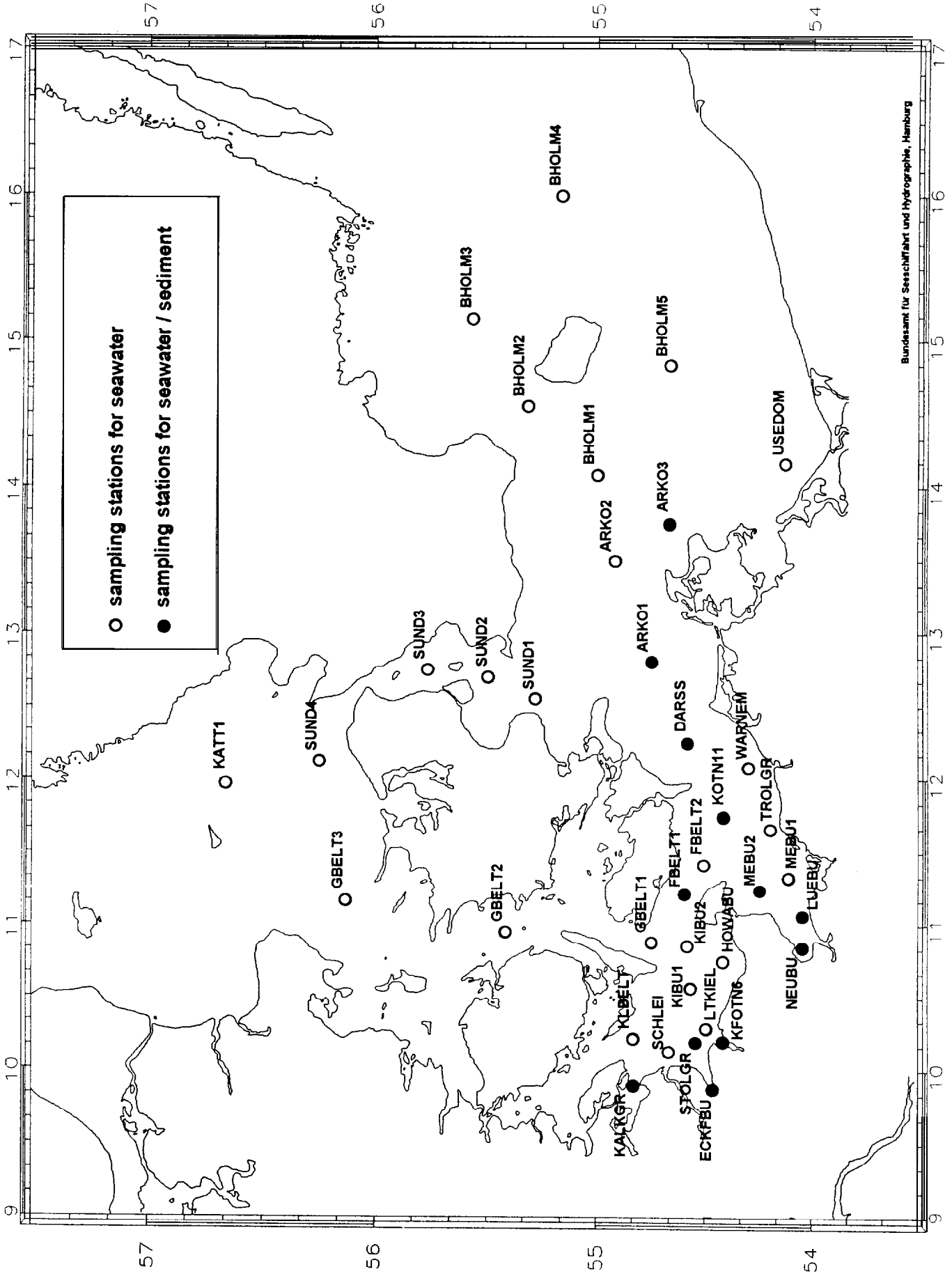

sampling stations for seawater
sampling stations for seawater / sediment
KATT1
SUND4
SUND3
SUND2
SUND1
BHOLM4
BHOLM3
BHOLM2
BHOLM1
BHOLM5
USEDOM
ARKO3
ARKO2
ARKO1
DARSS
WARNEM
KOTN11
TROLGR
MEBU1
MEBU2
LUEBU
FBELT2
FBELT1
GBELT3
GBELT2
GBELT1
KIBU2
KIBU1
HOWABU
KLBELT
SCHLEI
LTKIEL
KFOTN6
NEUBU
STOLGR
ECKFBU
KALTGR
Bundesamt für Seeschiffahrt und Hydrographie, Hamburg

Fig. 1

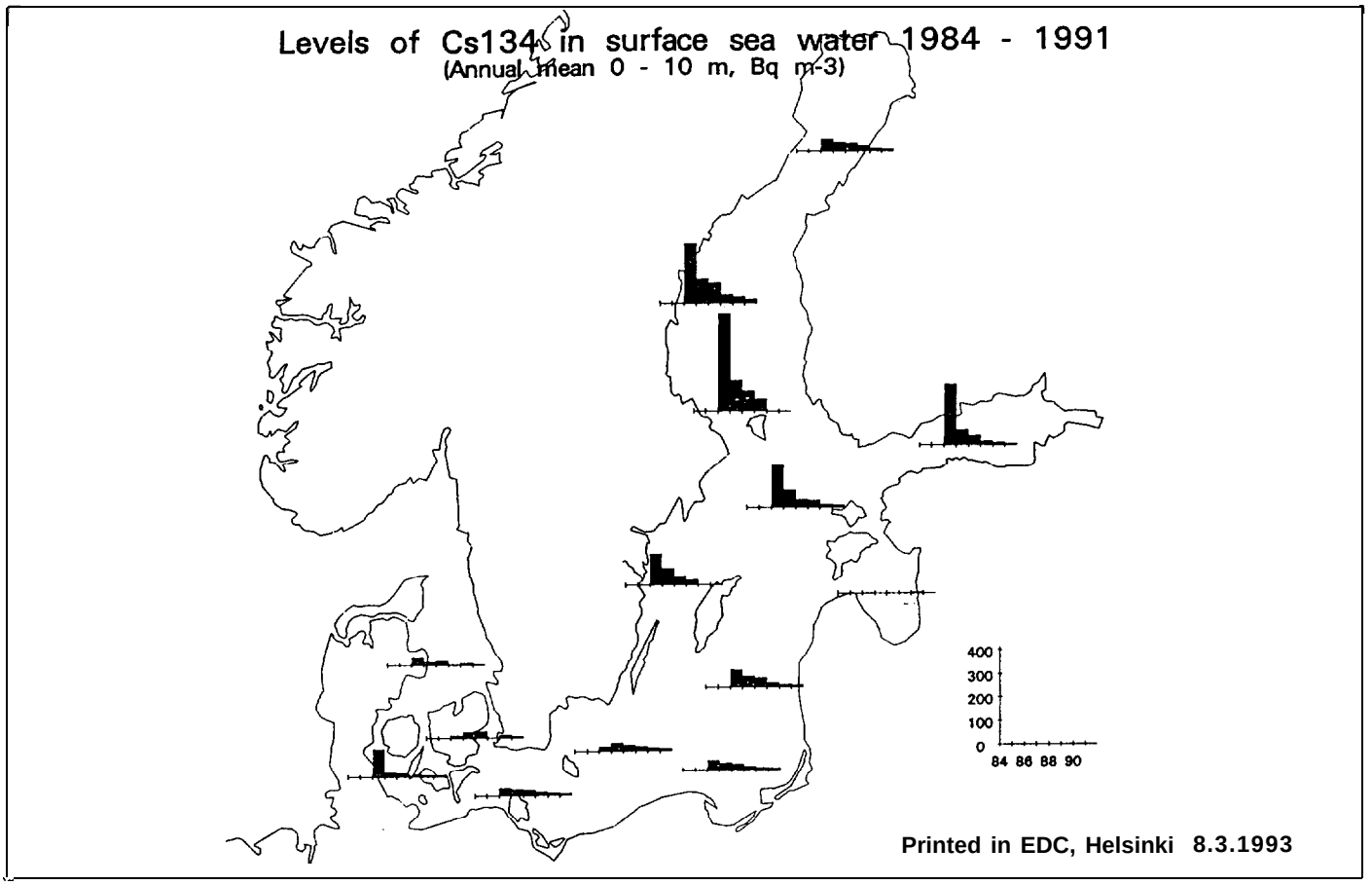

Levels of Cs134 in surface sea water 1984 - 1991
(Annual mean 0 - 10 m, Bq m-3)
400
300
200
100
0
84 86 88 90
Printed in EDC, Helsinki 8.3.1993

Fig. 2

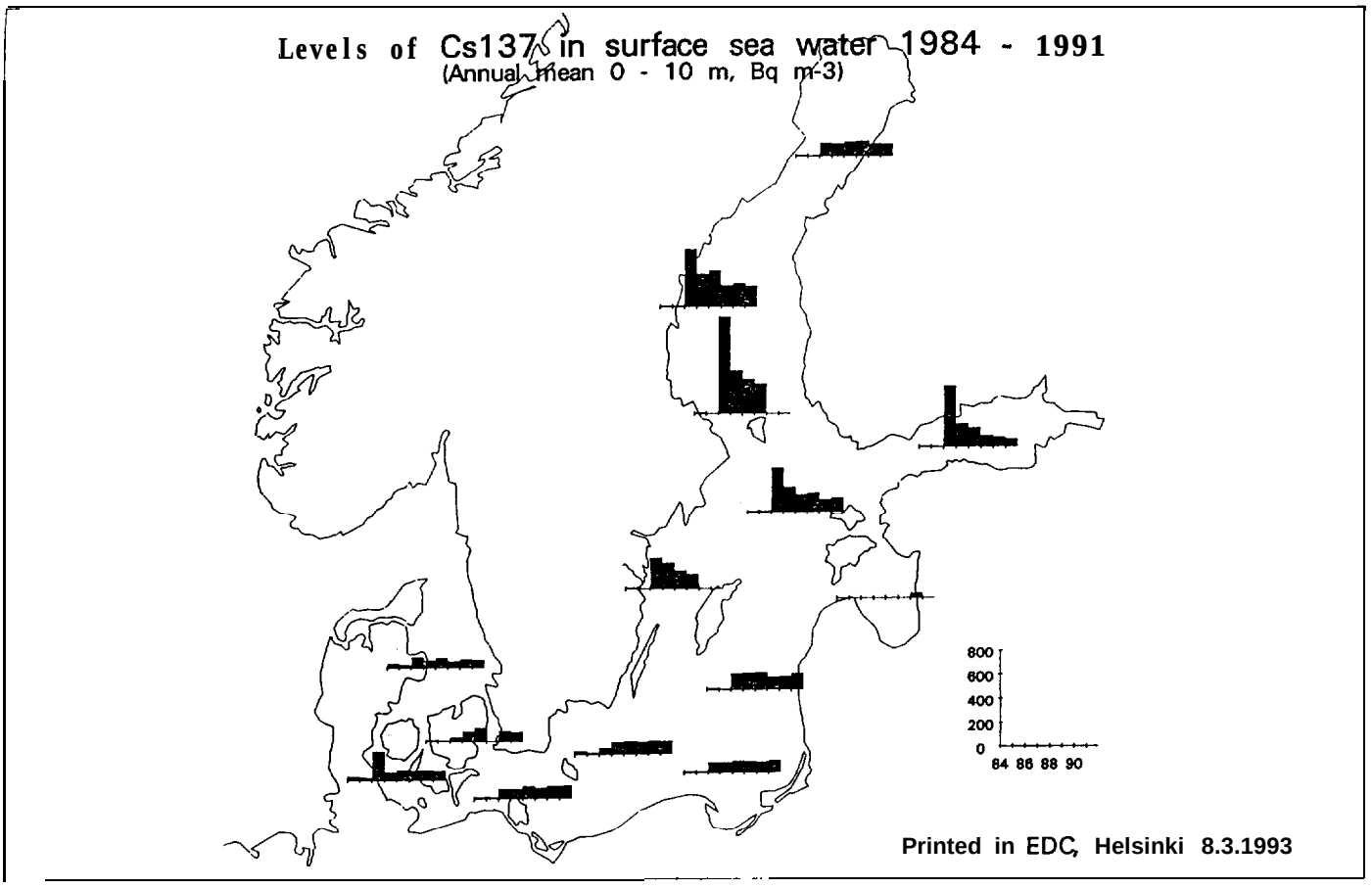

Levels of Cs137 in surface sea water 1984 - 1991
(Annual mean 0 - 10 m, Bq m-3)
800
600
400
200
0
84 86 88 90
Printed in EDC, Helsinki 8.3.1993

Fig. 3

AQUATIC H-3 DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES IN THE BALTIC SEA AREA IN 1984 – 1992

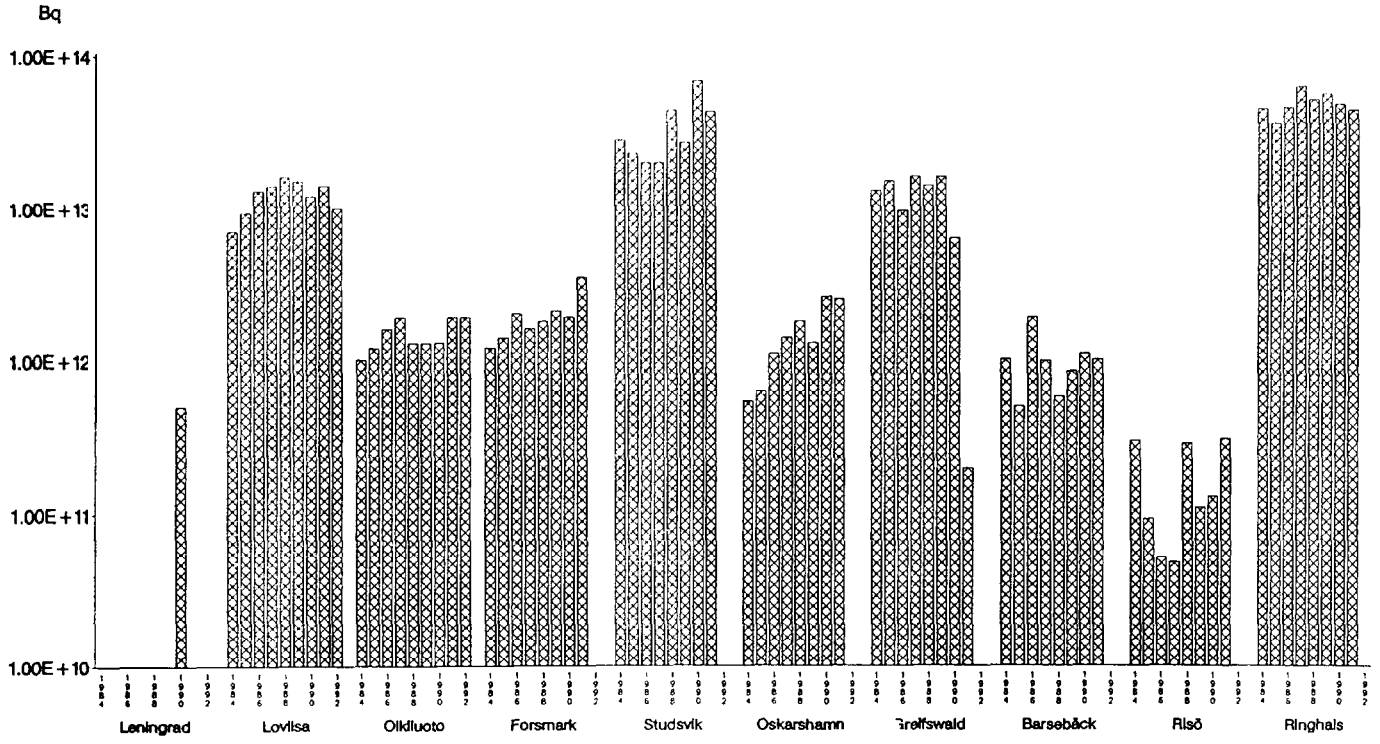


Fig. 4

AQUATIC Cs -137 DISCHARGES FROM NUCLEAR POWER PLANTS AND OTHER NUCLEAR FACILITIES IN THE BALTIC SEA AREA IN 1984 – 1992

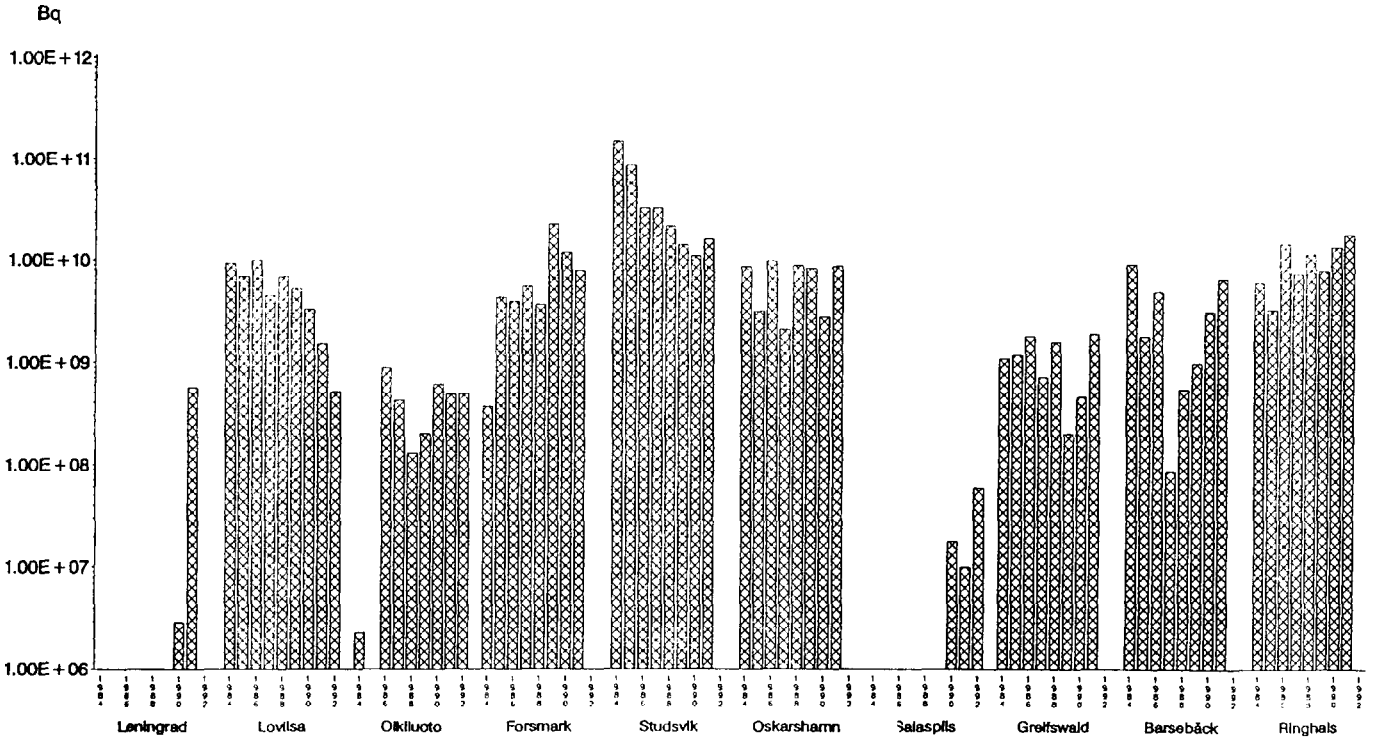


Fig. 5

Seminar on the implementation of HELCOM arrangements,
Riga, August 30 - September 3, 1993.

THE BALTIC MONITORING PROGRAMME

Sverker Evans
Swedish Environmental Protection Agency
S-171 85 Solna
Sweden

INTRODUCTION

Article 16 of the Helsinki Convention describes the framework for the scientific and technological co-operation to be maintained among the CP's and between the Commission and other international organisations. This co-operation is directed in principle at the following three areas of activity:

- Marine scientific research aimed at describing the present state of the Baltic Sea and the factors affecting it.

- Technological research and development needed for finding ways and means of limiting or sometimes preventing totally the introduction of pollutants in the the Baltic Sea Area.

- Co-ordinated monitoring of the pollution state of the marine environment and of discharges into it as a means of following their effects on the Baltic Sea Area.

Additionally, this Article emphasises the necessity of a continuous increase in overall background information for the purpose of decision making: "The CP's undertake... to cooperate in developing inter-comparable observation methods, in performing baseline studies and in establishing complementary or joint programmes for monitoring."

Thus, the objectives of the Baltic Monitoring Programme (BMP) are to evaluate levels and trends of general quality parameters, and of pollutants. The purposes of the joint Baltic programme are then to conduct monitoring for (a) patterns and trends, and (b) for regulatory purposes. These goals coincide with the two objectives set up by the OSPARCOM Joint Monitoring Programme (JMP):

- Assessment of existing level of marine pollution (spatial distribution).

- Assessment of the efficiency of measures taken to reduce marine pollution (assessment of trends). That is, through the trends it aims at verifying the effectiveness of marine environment protection measures.

THE BALTIC MONITORING PROGRAMME (BMP)

A monitoring programme consisting of regular observations of several physical, chemical, and biological properties was initiated by the Commission in 1979. The aim of the Baltic Monitoring Programme (BMP) is to follow the long-term trends of

selected determinands in the Baltic Sea Area. The field work for collecting data followed a programme agreed in Szczecin at the First Meeting of Experts on the Monitoring of the Marine Environment of the Baltic Sea Area, 1977. The programme was reviewed in 1982 and implemented in 1984. Parameters were chosen which should mirror changes in the natural hydrophysical, hydrochemical and biological features of the Baltic Sea sub-regions. In addition, a number of determinands were chosen in order to provide direct information on levels and trends in the state of pollution.

Monitorins stations

At presently, BMP contains a number of strategic stations in different parts of the Baltic sea (Fig 1). The objectives are to have a set of determinands which give an adequate spatial and temporal coverage of the Baltic Sea Area. The stations are visited according to a cruise plan which is established one year in advance. Different countries are responsible for the collection of data in different regions of the Baltic Sea area (Table 1).

Determinands

The list of determinands to be monitored is divided into two groups: determinands which are essential for inclusion in the programme (obligatory determinands) and those which are desirable but for certain reasons cannot be made obligatory at this stage (tentative determinands). The obligatory and tentative determinands of BMP are viewed in Table 2. Sampling procedures of indicator organisms and recommended tissues for analysis of harmful substances are shown in Tables 3 and 4.

Sampling frequency

The main sampling periods and the sampling frequency of many biological determinands varies due to seasonal pertubations, while for other non-biological parameters the time of the year is of less importance (Table 5).

Guidelines

Guidelines are used to establish the basic criteria of the BMP. The guidelines for the BMP programme, as agreed upon by all Baltic Sea States, are published by the Commission every five years. Guidelines for the First Stage of BMP was issued in 1980. The present Guidelines apply to the third stage of the BMP, i e from 1989 to 1993. The next assessment period will be from 1994 to 1998.

Quality Assurance (QA)

The success of environmental monitoring programmes is directly related to the collection and interpretation of reliable data. Interlaboratory exercises provide an opportunity to obtain an independent evaluation of the participating laboratories' analytical performance. Within the frame of the BMP, the CP's have organized a number of intercalibration workshops in order to develop comparable observations:

- 1st Baltic Intercalibration Workshop of the analytical methods for determination of harmful substances in sea water - Kiel, FRG, March 1977.

- 1st Biological Intercalibration Workshop - Stralsund, GDR, August-September 1979.

- Workshop on the analysis of hydrocarbons in sea water - Kiel, FRG, March-April 1981.

- 2nd Biological Intercalibration Workshop - Rønne, Denmark, August 1982.

- 3rd Biological Intercalibration Workshop - Visby, Sweden, August 1990.

Data handling

The monitoring data provided by all Baltic Sea States are stored and processed in the HELCOM Data Base established by the Commission on a consultant basis. As from 1991, the Environmental Data Centre (EDC) in Helsinki is responsible for the BMP data which are delivered on a yearly basis by the CP's. The aim of the common data bank is to serve as a source of current information on the state of the Baltic Sea.

APPROACHES TO ASSESSMENTS

The environmental status of the Baltic Sea Area is evaluated at regular intervals by all the Baltic Sea States. At presently, the assessment period covers a period of five years, and up till now two assessments have been conducted. The data used in these evaluations comprise data from the HELCOM Data Base, together with additional information from research projects and other national programmes.

The Baseline Assessment 1980

In 1978, the interim Helsinki Commission asked for an assessment of existing data on the pollution of the Baltic Sea. By "assessment" the Commission meant an evaluation of the conditions and quality of the environment and its living resources. About 30 scientists from the Baltic Countries worked out the "Assessment of the Effects of Pollution on the Natural Resources of the Baltic Sea, 1980" (Melvasalo et al., 1981). Topics treated in chapters were: Physical parameters, dissolved gases, nutrients, harmful substances, and biological parameters. Information was given on: gaps in knowledge, trends, differences in sub-areas, inter-relationships with other processes, inputs to the Baltic Sea, effects of human activities, and the degree of pollution. The 1980 assessment was meant as an "baseline assessment" from where future trends should be determined in subsequent evaluations.

The First Periodic Assessment for the period 1979-1983

In 1981, the "Ad hoc Group of Experts on Assessment of the State of the Marine Environment of the Baltic Sea" (GEA) was established. More than 40 experts from all countries boardering the Baltic Sea joined in a cooperative effort and produced the "First Periodic Assessment of the State of the Marine Environment of the Baltic Sea Area, 1980-1985" (Baltic Marine Environment Protection Commission, 1986; 1987a). Chapters, reflecting the sub-divisions of the Guidelines, were: Hydrography, nutrients, harmful substances, pelagic biology, zoobenthos, and microbiology. The GEA evaluated the results from the BMP for the period 1979 - 1983 but also reviewed other information pertinent to the assessment of the state of the Baltic Sea.

Generally, the results from a previous assessment are meant to improve the quality of the next monitoring period. Some general conclusions were drawn from the First Periodic Assessment:

- The main finding was ongoing eutrophication in the Baltic Sea. This called for further action to reduce the inputs of nutrients from the Baltic Sea States.

- There was reason to beleive that phytoplankton biomass and primary production in the Baltic Sea was doubled between 1970 and 1980. This had some implications for the zoobenthos living in areas not disturbed by oxygen deficiency.

- Concentrations of DDT and its metabolites in eggs of sea birds and in herring from the Baltic Sea were in 1979 - 1983 still higher compared with data from the North Sea. However, there

had been a ten-fold reduction of concentrations achieved between 1970 and 1980. With regard to Hg and DDT, by 1979 environmental protection measures seemed to be effective.

- Very little was known about other organic contaminants.

- Modelling the water exchange between the North Sea and the Baltic was still undeveloped.

The Second Periodic Assessment for the period 1984-1988

The conclusions of the scientific material from the "Second Periodic Assessment of the State of the Marine Environment of the Baltic Sea" (Baltic Marine Environment Protection Commission, 1990a,b), covers the period 1984 - 1988. Experts from all Baltic States worked together in the "Ad hoc Group of Experts for the Preparation of the Second Periodic Assessment" (GESPA). The main topics were as follows:

* Hydrography
* Oxygen, hydrogen sulphide, alkalinity, pH
* Nutrients
* Pelagic biology
* Zoobenthos
* Baltic fish stocks
* Micro-organisms
* Trace elements
* Organic contaminants

The assessment dealt mainly with observations made in the open sea. Consequently, the conclusions did not reflect findings in coastal areas, which fall within the jurisdiction of each State. However, an holistic assessment of the various coastal areas of the Baltic Sea has for a long time been requested by the Commission. Such an evaluation, based on national reports, is now under way and will be finalized at the end of 1993.

Some general conclusions were drawn from the Second Periodic Assessment:

- The strong increase of phosphorous and nitrogen, which was observed in the 1970s, has ceased in many areas of the Baltic Sea. However, this is not a proof that anthropogenic inputs do not further increase but may only be an indication that hydrographic conditions play an important role.

- There was evidence that phytoplankton primary production has doubled within the last 25 years in the area from the Kattegat

to the Baltic proper, with a similar doubling of phytoplankton biomass and its subsequent sedimentation.

- Environmental influences on the stocks of demersal fish and shellfish, primarily due to low oxygen conditions, was clearly seen in certain areas.

- Concentrations of organochloride residues in fish from the Baltic proper were still 3 - 10 times higher than in fish from the Shetland Islands. DDT and PCB concentrations in biota have decreased since the 1970s and are now on a low and steady level. After the ban on HCH, the decrease of a-HCH concentrations in water is still continuing. There has been an increasing number of organic substances identified which are potentially harmful to the environment.

- Fish and shellfish from sampling locations in the Kattegat and the Belt Sea showed tendencies for decreasing lead concentrations. This might be due to the increased use of unleaded gasoline.

FURTHER DEVELOPMENT OF BMP

Monitoring strategy

Future improvements of BMP were discussed at the HELCOM Environmental Committee Meeting in Gdynia in September 1991. The general philosophy in having a mandatory part for the traditional parameters was supported, while the tentative part dealing with e g micropollutants needed a mechanism to provide quicker results. The BMP should therefore consist of a mandatory part performed by all CP's (as today), and a baseline part where only a few laboratories would be involved on behalf of the other. In this context, "base-line" should be understood in a wider sense and should also include various types of monitoring of contaminants for which already some information exist. The term could also include biological effects studies or any other study not performed regularly on a larger geographical scale. The results of the baseline studies could be assessed either separately or together with periodic assessments if the timing is appropriate.

It was also suggested to abandon the present five-year periodicity of the up-dating procedure and instead introduce a new rolling procedure for the BMP.

Improvements of Guidelines

The Guidelines for the Fourth Stage of BMP will include clear specifications of the quality assurance measures required to be taken for each type of measurement in the BMP. The drafting of these QA guidelines should be completed during 1993. It also proposed that a workshop be held in September 1993 to present and discuss the changes in and the new requirements of the guidelines for the Fourth Stage of the BMP, with special emphasis on the new quality assurance requirements.

For some of the micropollutants which require very sophisticated techniques, the analyses could be performed on the basis of work done by only a few experienced laboratories. Other CP's could support them by providing necessary samples from their respective areas.

Improvments to be implementented within BMP

The assessments have revealed a number of shortcomings within BMP, and a number of improvements have been suggested.

Pelagic biology:

The period 1979 - 1988 was still too short for proper trend analysis of the Baltic phyto- and zooplankton communities. The frequency of measurements should be adjusted to be able to follow more closely the seasonal development of the plankton.

Microbiological studies still play a somewhat minor role in the biological monitoring of the Baltic Sea. Microbiological determinands should be made an integral part of BMP.

Organic nitrogen compounds such as urea, humic acids, proteins and amino acids should be analysed in sea water in order to be able to understand their significance for biological productivity.

Benthos:

In order to be able to follow the development of the macrozoobenthos in the vicinity of the halocline in the central and northern Baltic proper, a number of regular monitoring stations should be identified. In addition, in order to follow the eutrophication, stations in shallow waters as well as data from national sources are needed.

Trace elements:

Regarding particle-associated metallic trace elements, there is an urgent need for intercomparison and standardization of the various procedures.

Organic contaminants:

Data on contaminants other than DDT, PCBs, HCH and PHC are generally few and scattered and produced with different, non-standardized analytical methods. This implies that it is not possible to evaluate the distribution patterns or temporal trends in the environmental levels of these "new" contaminants. Examples of compounds that should be analysed on a more regular basis are brominated biphenyls, brominated diphenylethers and chlorinated thiophenes.

Organic contaminants in sediments are not assessed on a regular basis within BMP. However, the first base-line study on contaminants in Baltic sediments will be conducted in 1993 as a joint ICES/HELCOM survey.

Diseases:

Information should be collected on the health status of the fish and marine mammal populations from the Baltic Sea Area (i e diseases, physiological and morphological anomalies).

SHORTCOMINGS OF BMP

The monitoring network which is set up should be designed in a way so that it will correspond to its goals. However, the objectives given by HELCOM are very general and may embrace almost every aspect of marine pollution. The results of the BMP cannot at the present stage of development give a full description of the state of contamination of the marine environment in the Baltic Sea, and do not permit estimations of inputs. The data obtained by BMP will only allow trend analyses of concentrations over time and are alone not sufficient to provide any cause-effect relationships. As the BMP is restricted to measurements in the open sea, no monitoring of local pollution sources is made. It is only through an accurate assessment of contaminant inputs into the Baltic that effective protection measures will be established.

The HELCOM Convention will also "apply for the protection of the marine environment which comprises . . . their living resources and other forms of marine life". This will coincide with the JMP purpose (b): to assess the harm to living resources and marine

life. This objective, which can be interpreted as biological effects monitoring, is at presently not covered by the BMP. Diseases and physical anomalies in fish, birds and marine mammals which might be related to the exposure to pollutants are not treated in any detail. Thus, more weight should be given to process- and effect-oriented research efforts. Sensitive biological methods for effect monitoring should be developed. This type of monitoring aims at assessing the state of health of marine biota through the measurement of the reaction of these organisms to the changes in environmental quality.

Furthermore, vital research suggested by GESPA is given below:

Investigations on the causes and conditions of major inflows of saline water into the Baltic Sea should be intensified. This includes modelling activities. Attention should be given the studies on the exchange processes across the permanent halocline and between the open sea and the coastal zone.

Estimations of the mass balance of nutrients and trace elements should also be improved as well as detailed studies on the biogeochemical nutrient cycles in the Baltic Sea.

More informations should be obtained about biological production and decomposition rates.

Research should be promoted on the effects of environmental conditions on the early stages of fish.

The implementation of international monitoring programmes always causes great difficulties. However, contrary to the monitoring activities performed on a national level, the joint monitoring programme has the advantage of enhancing the use of the same methodology in a large number of geographical areas and for an extended period of time.

REFERENCES

Baltic Marine Environmental Protection Commission - Helsinki Commission, 1986. First Periodic assessment of the state of the marine environment of the Baltic Sea area, 1980 – 1985; General conclusions. Balt. Sea Environ. Proc. 17A, l-54.

Baltic Marine Environmental Protection Commission - Helsinki Commission, 1987. First Periodic Assessment of the state of the marine environment of the Baltic Sea area, 1980 - 1985; Background document. Balt. Sea Environ. Proc. 17B, 1-351.

Baltic Marine Environmental Protection Commission - Helsinki Commission, 1988. Guidelines for the Baltic Monitoring Programme for the Third Stage. Part A. Introductory chapters. Balt. Sea Environ. Proc. 27A, l-49.

Baltic Marine Environmental Protection Commission - Helsinki Commission, 1990a. Second periodic assessment of the state of of the marine environment of the Baltic Sea, 1984 - 1988; General conclusions. Balt. Sea Environ. Proc. 35A, l-32.

Baltic Marine Environmental Protection Commission - Helsinki Commission, 1990b. Second periodic assessment of the state of the marine environment of the Baltic Sea, 1984 - 1988; Background document. Balt. Sea Environ. Proc. 35B, l-432.

Melvasalo, T., Pawlak, J., Grasshoff, K., Thorell, L. & Tsiban, A. (eds.),1981. Assessment of the effects of pollution on the natural resources of the Baltic Sea, 1980. Balt. Sea Environ. Proc. 5B, 1-426.

MAP OF THE MONITORING STATIONS IN THE BALTIC AREA

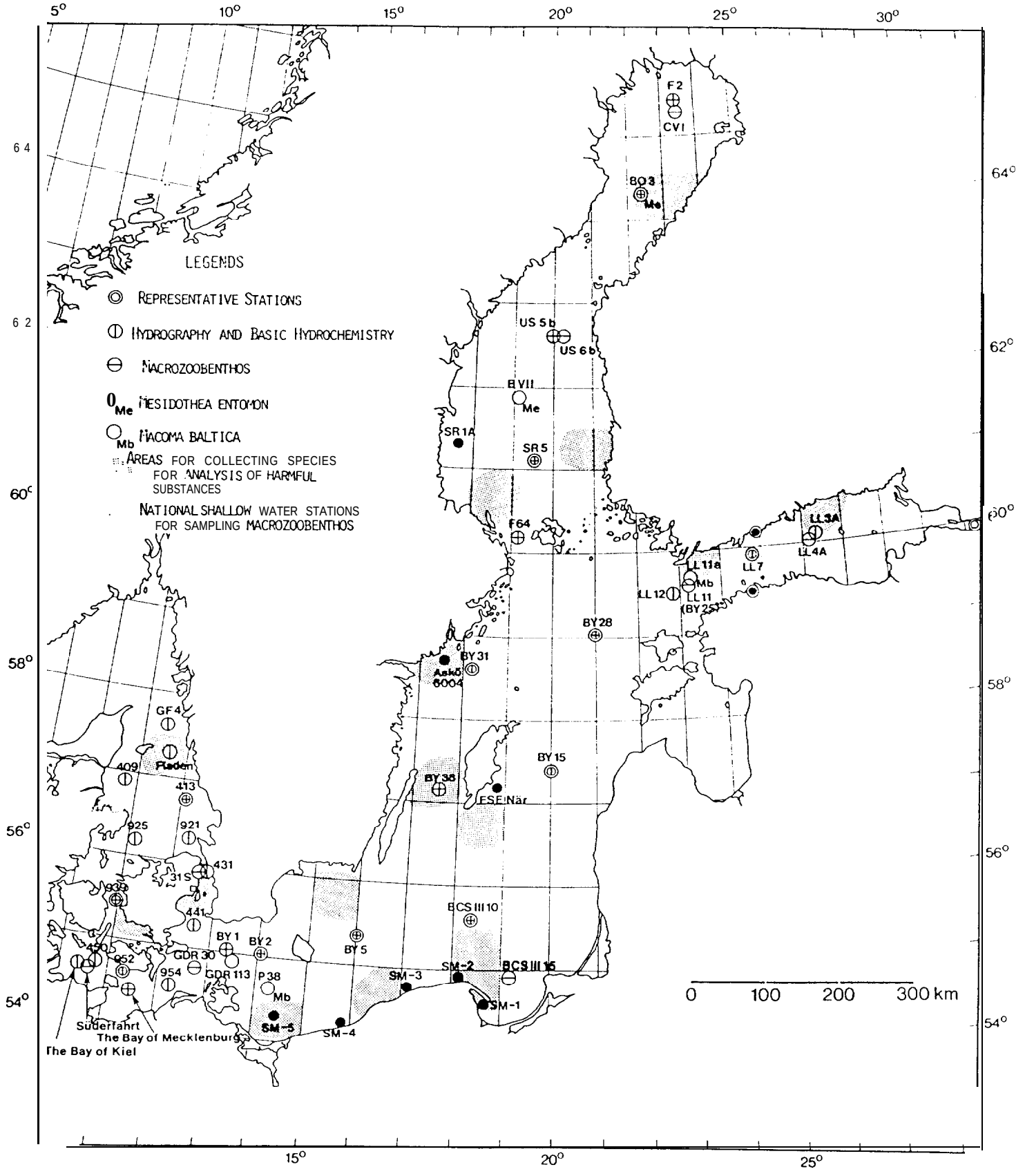


Figure 1. Map of the monitoring stations in the Baltic Area. From: Balt. Sea Environ. Proc. (1990).

Table 1. Area1 responsibility of BMP.

Baltic proper	Estonia, Finland, Germany, Latvia, Lithuania, Russia, Sweden
Gulf of Bothnia	Finland, Sweden
Gulf of Finland	Estonia, Finland, Russia
The Sound, the Kattegat	Denmark, Sweden
The Bay of Kiel and the Bay of Mecklenburg	Germany

Table 2. Obligatory and tentative determinands in BMP.

Physical and chemical determinands in sea water.

Obligatory: T, S, O_2, **PO**,, P-tot, NO_3, NO_2, SiO_3(1), pH(2), alkalinity (2).

(1) = obligatory only in Kattegat, the Sound and the Belt Sea.
(2) = only in connection with ^{14}C primary production measurements.

Tentative: density, N-tot.

Remarks: Only those methods which have been succesfully intercalibrated have been accepted for the analyses of obligatory determinands.

Heavy metals, petroleum hydrocarbons and chlorinated hydrocarbons in sea water.

Tentative: Hg, Cd, Zn, Cu, Pb, Sn-tot, Sn-org., PHCs, DDTs, PCBs, lindane.

Remarks: Heavy metals and chlorinated hydrocarbons are included in the BMP for the Third Stage as tentative determinands because of the methodological problems concerned.

Harmful substances in biota.

Obligatory species: Herring, cod.

Tentative species: Macoma baltica, Mytilus edulis (Bivalvia); Saduria (Mesidothea) entomon (Crustacea).

Obligatory substances: pp'-DDT, pp'-DDE, pp'-DDD, PCBs, HCB, α-HCH, -HCH, Hg, Cd, Pb.

Tentative determinands: Chlordanes, dieldrines, Zn, Cu.

Remarks: Herring and cod are used as indicator organisms due to a number of reasons:
- they are caught in all parts of the Baltic
- they are of suitable size
- their biology is fairly well known

Table 2 (cont'd)

However, these two species are migratory and any sampling of them must pay due attention to the period when they probably represent the area where they are caught.

For practical reasons, only species with a relatively large individual size can be used. Both Macoma and Saduria occur throughout almost the entire Baltic Sea area, and are chosen as optinal species in the BMP. In the Baltic, Mytilus edulis penetrates into deeper waters and is also used as a tentaive indicator species at a number of stations in the open sea.

It is recommended that the determination of individual chlorobiphenyl compounds be made obligatory by the end of the Third Stage, with quantification of the following CBs: IUPAC Nos. 28, 52, 101, 118, 138, 153, 180.

Analytical methods for contaminants such as polychlorinated camphenes (PCCs, e g toxaphene), dibenzodioxins and -furans (PCDDs, PCDFs) and PAHs require much work before comparable data will be obtained. It is important that research continues in order to develop efficient analytical tools to be used for serial analyses.

Biological determinands.

Obligatory:

Phytoplankton: primary production, chlorophyll-a, species composition, biomass.
Zooplankton: species composition, abundance, biomass.
Macrozoobenthos: species composition, abundance, biomass.

Tentative: Phytoplankton phaeopigments, protozooplankton, pelagic micro-organisms (total number, biomass and production of bacteria).

Remarks: It is essential that sampling of macrozoobenthos is accompanied by some hydrographic determinations. Bottom water should therefore be sampled for the determination of S, T, O_2/H_2S.

Table 5. SAMPLING FREQUENCY OF BMP.

Determinands	Attempted frequency	Most important period of sampling
Hydrography		
Hydrochemistry		
a) long-term trend monitoring purposes	four seasons	nutrients: winter time oxygen: late summer - autumn
b) in connection biological determinands	(see pelagic biology)	(see pelagic biology)
Harmful substances		
a) in sea water:		
organochlorines	once a year	none
PHCs	once a year	summer
Heavy metals	once a year	research needed
b) in biota:	once a year	late summer - autumn
Pelagic biology		
a) Baltic proper	12 times a year	summer time, but should be sampled throughout the productive season
b) other areas	6 times a year	(as Baltic proper)
Macrozoobenthos	once a year	late winter - early spring

QUALITY ASSURANCE FOR CHEMICAL ANALYTICAL PROCEDURES IN MARINE MONITORING

Uwe Harms
Bundesforschungsanstalt für Fischerei
Institut für Fischereiökologie
Wüstland 2, 22589 Hamburg, Germany

The Role of Analytical Chemistry in Research or Monitoring Programmes

Analytical Chemistry has developed a tendency to a scientific discipline with a multidisciplinary character. Remarkable instrumental evolutions have occurred during the last decades with the consequence that far reaching information can be gained in many fields such as material chemistry, environmental research, clinical chemistry, toxicology, biotechnology and microelectronics.

The objective of Analytical Chemistry is to obtain chemical information about materials or systems concerning their specific qualitative and quantitative composition and structure (Danzer, 1992). Analytical methods are the fundamental tools of the analyst. They are based on chemical reactions and electroochemical processes as well as on interactions with all forms of energy, particularly radiation. Most of the techniques of measurements are based on physical principles. However, the connection to chemistry is given through the material aspects of the sample. Figure 1 shows a systematic outline of the hierarchy of principal components of analytical investigations.

Adaptation of an analytical method for the selected analytical task is a prerequisite if the objectives of the investigations shall be attained. In each case it is important that the key elements of analytical investigations comply with each other.

The Need for Quality Assurance in Marine Environmental Protection

Under the auspices of the Baltic Marine Environment Protection Commission - HELSINKI COMMISSION - marine environmental monitoring data have been collected since 1379 within the frame of the Baltic Monitoring Programme (BMP). The guidelines for the programme are reviewed in regular time intervals of 5 years by the Commissions. The third Stage of the BMP started in 1989.

The monitoring data provided by the Contracting Parties to the HELSINKI Convention serve **as** a source of information for the preparation of periodic assessments of the state of the marine environment of the Baltic Sea. The work is performed by a group of experts from all Baltic states, as well as representatives of the International Council for the Exploration of the Sea (ICES) and the Conference of the Baltic Oceanographers (CBO).

On the basis of the results from the monitoring work, the Group of Experts for the Preparation of the Second Periodic Assessment of the State of the Baltic Sea (GESPA), expressed concern over the unsatisfactory degree of interlaboratory comparability of data. They agreed that a programme of **Quality Assurance (QA)** should be developed to allow experts to specify the limits of uncertainty of measurements and which would help them to decide objectively whether analytical information provided is of acceptable quality. In particular, GESPA recommended

- "the Helsinki Commission should ensure that certified reference materials are made available for laboratories involved in the Baltic Monitoring Programme in order to improve the quality and the quality control of the data. Further elaboration of methods agreed upon and participation in intercalibration exercises is necessary" (HELSINKI COMMISSION, 1990).

Accordingly, the HELSINKI COMMISSION
"urged the Contracting Parties to participate in the Quality Assurance Exercises whenever possible and decided that the participation in QA-exercises is mandatory for the laboratories providing BMP data on parameters included in the mandatory part of the Baltic Monitoring Programme" {HELSINKI COMMISSION, 1993).

Scientific Justification for Quality Assurance for Chemical Analytical Procedures in Marine Monitoring

In a recent article Topping (1992) concluded that although there had been considerable improvement in analytical chemistry over the past two decades, there was a large number of European laboratories which still had difficulties in providing reliable data in routine work. The author based his conclusion on the results of a series of external quality assessments of analysis (generally referred to as intercomparison exercises), organized over the last 20 years by the International Council for the Exploration of the Sea (ICES), and which have shown that there are large interlaboratory differences in the measurements of contaminants in marine samples.

As a consequence of lacking measures to assure the quality of analytical data, information about variations of contaminant levels both in space and time are often uncertain or misleading, and the effects of political measures to improve the quality of the marine environment cannot be adequately assessed. Therefore, the acquisition of relevant and reliable data is an essential component of any research and monitoring programme associated with marine environmental protection. To obtain such data, the whole analytical process must proceed under a well established Quality Assurance (QA) programme.

Quality Assurance in Practice

Quality assurance is defined as the procedures carried out by laboratory staff which ensure that data of the appropriate quality is obtained to meet the objectives of the analysis

(Topping, 1992). Two principal components of QA are quality control and auality assessment. The former refers to measures which maintain analysis within an acceptable level of accuracy and precision. The latter refers to procedures adopted to provide documented evidence that the quality control is being achieved.

In practice, **Quality Assurance** applies to all aspects of analytical investigation, and includes the following principal elements:

Provision and optimization of appropriate laboratory facilities and analytical equipment.

Selection and training of staff for the analytical task in question.

Establishment of definitive directions for appropriate collection, preservation, storage and transport procedures to maintain the integrity of samples prior to analysis.

Use of suitable pre-treatment procedures, prior to analysis of samples, to prevent uncontrolled contamination, and loss of the determinand, in the samples.

Validation of appropriate analytical methods to ensure that measurements **are** of the required accuracy and precision to meet the needs of the investigations.

Conduct of regular intralaboratory checks on the accuracy and precision of routine measurements, by the analysis of appropriate reference materials, to assess whether the analytical methods are remaining under control, and the documentation of the results on control charts.

Participation in interlaboratory quality assessments to provide an independent assessment of the laboratory's capability of producing reliable measurements.

The preparation, and use, of written laboratory protocols so that specific analytical data can be traced to the relevant samples, and vice versa.

Validation plays a particular role within this scheme. Therefore, an outline of the principal procedure for validation of analytical methods is given in Figures 2 and 3.

The Benefits of Implementing a QA System

When providing analytical data, we must recognize that reliability and economy are decisive factors which are closely linked. Savings made at the expense of the reliability of results can often later be paid for dearly as this means that funds are spent on unacceptable results. This is why an optimization of both of these criteria is necessary if analytical work is to be efficient. The cost of routine **Quality Assurance** (including the costs of certified reference materials) can be as much as 15 % of the cost of total analytical performance in a laboratory. However, the benefit of implementing a sound **Quality Assurance** system are substantial:

The participating laboratoy will be able to provide reliable data and thus contribute successfully to an international monitoring programme, such as the BMP.

Traceability of the measurement process is achieved, i.e. the analyst is in the position to trace objectively an analytical problem back to its source.

The self-confidence of analysts participating in a quality assurance programme will increase.

The laboratory's analytical capacity will be more effectively utilized.

Conclusion

Considerable importance is attached to analytical information within the framework of decision processes. This is also the case for decisions related to environmental protection, where growing demand for data has been realized. However, with

increasing frequency, analysts find themselves in areas of conflict which result from the presentation of unreliable data. To improve this situation, the implementation and mandatory application of a sound **Quality Assurance** system are considered indispensable.

Within the framework of such a system, laboratories can improve and demonstrate their technical qualification and competence for conducting specific analyses or types of analyses in specified fields of investigations.

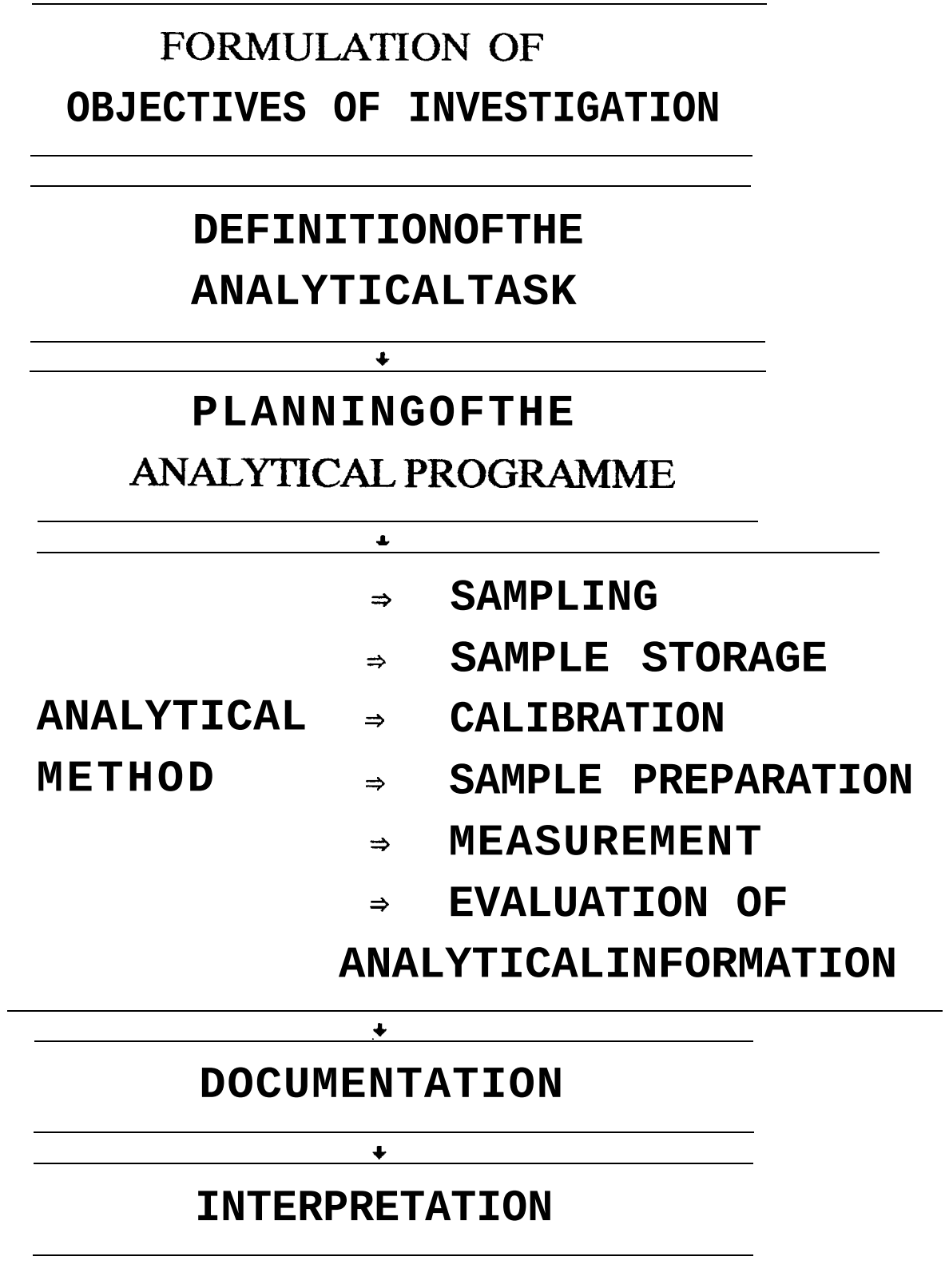
References

Danzer, K., 1992: Analytical Chemisty – today's definition and interpretation. Fresenius J. Anal Chem, 343, 827-828.

HELSINKI COMMISSION, 1990: Second Periodic Assessment of the State of the Marine Environment of the Baltic Sea, 1984-1988. General Conclusions. Baltic Sea Environment Proceedings No. 35 A, page 27.

HELSINKI COMMISSION, 1993: Report of the 14th Meeting of the HELSINKI COMMISSION, 2-5 Febr. 1993, Helsinki, Finland, page 7, paragraph 5.24.

Topping, G., 1992: The Role and Application of Quality Assurance in Marine Environmental Protection. Marine Pollution Bulletin 25, 61-66.



PRINCIPLES OF ANALYTICAL MEASUREMENTS
OF ENVIRONMENTAL SAMPLES

BFA/IFÖ
U.HARMS '93

Figure 1

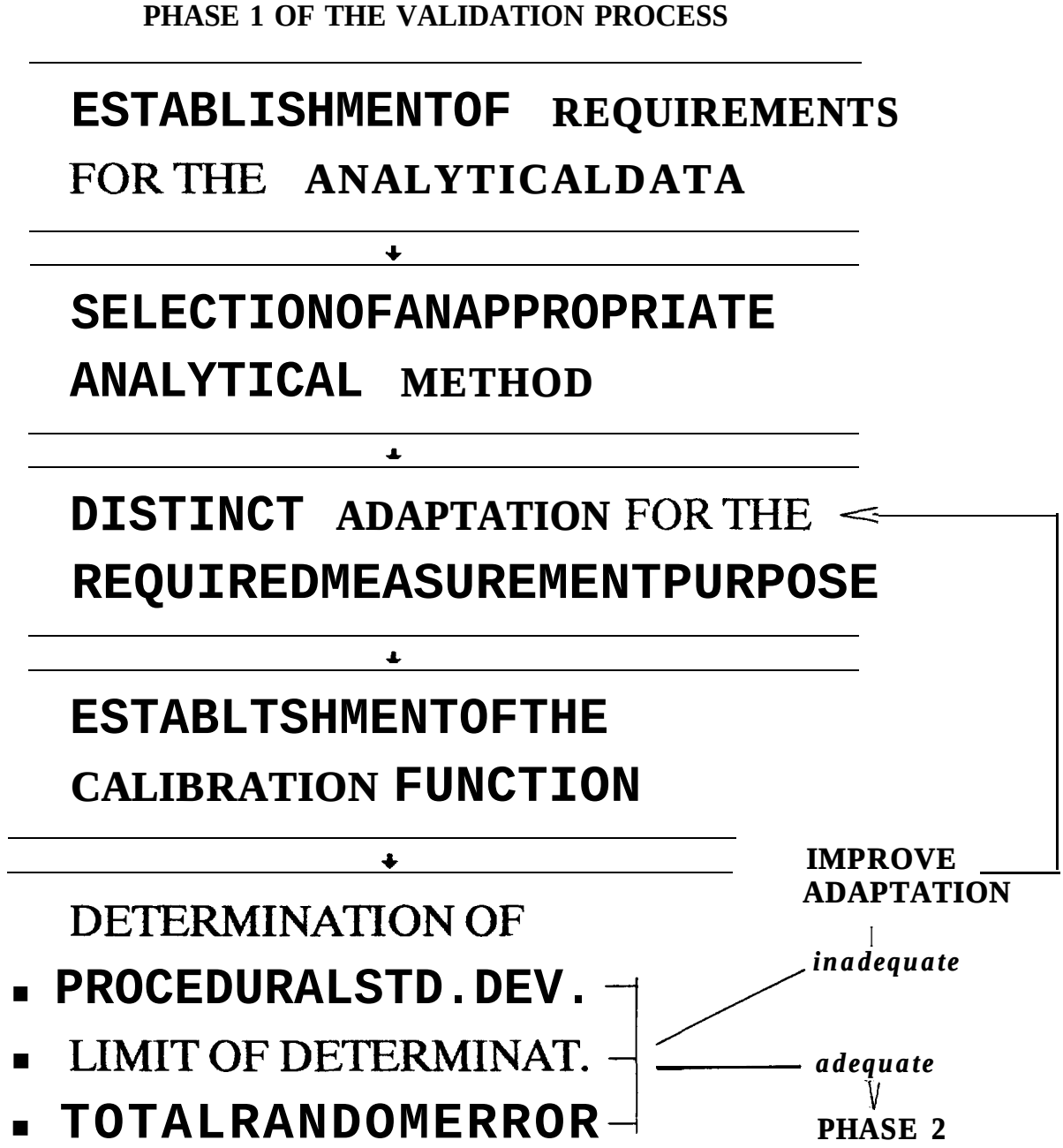
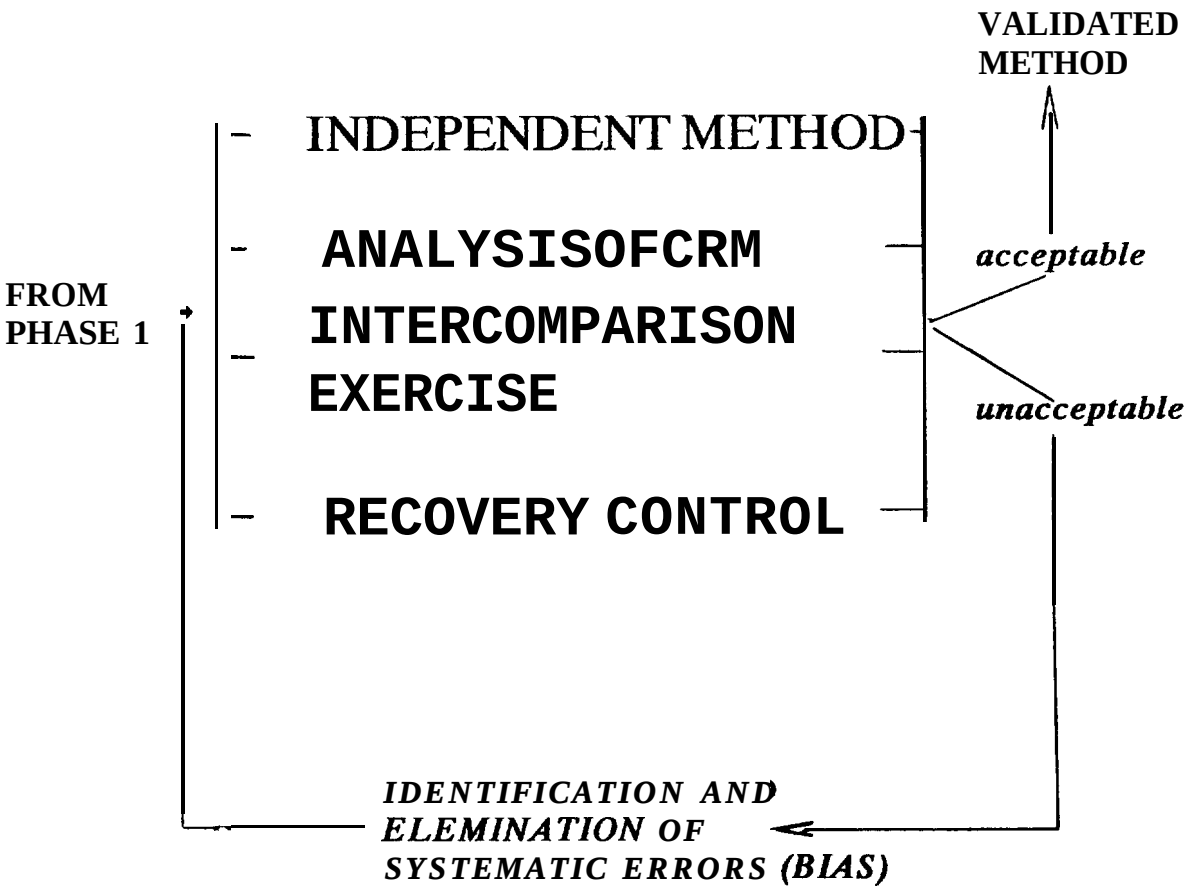

PHASE 1 OF THE VALIDATION PROCESS
ESTABLISHMENTOF REQUIREMENTS
FOR THE ANALYTICALDATA
SELECTIONOFANAPPROPRIATE
ANALYTICAL METHOD
DISTINCT ADAPTATION FOR THE
REQUIREDMEASUREMENTPURPOSE
ESTABLTSHMENTOFTHE
CALIBRATION FUNCTION
DETERMINATION OF
PROCEDURALSTD.DEV.
LIMIT OF DETERMINAT.
TOTALRANDOMERROR
IMPROVE
ADAPTATION
inadequate
adequate
PHASE 2
PRINCIPLE PROCEDURE FOR VALIDATION
OF ANALYTICAL METHODS
BFA/IFÖ
U. HARMS '93

Figure 2

PHASE 2 OF THE VALIDATED PROCESS



PRINCIPLE PROCEDURE FOR VALIDATION OF ANALYTICAL METHODS

BFA/IFÖ
U. HARMS '93

Figure 3

BALTIC MARINE ENVIRONMENT BIBLIOGRAPHY

Pirjo Sutela M. Sc.
Technical Research Centre of Finland
Information service

What is the Baltic Marine Environment Bibliography?

The Baltic Marine Environment Bibliography covers bibliographic information on the Baltic Sea, i.e. all marine areas from the Gulfs of Finland and Bothnia in the east and north to the Belt Sea and Kattegat in the west. It contains references to reports including "grey literature", journal articles, books, conference proceedings, dissertations etc. The bibliography covers material from the year 1970, currently ca. 9 000 references.

The Baltic Marine Environment Bibliography is produced under auspices of The Baltic Marine Environment Protection Commission (Helsinki Commission) from contributions prepared by the Baltic Sea states. The Information Service of the Technical Research Centre of Finland is responsible for compilation and processing of the bibliographic information as a consultant for the Helsinki Commission.

The availability of the Baltic Marine Environment Bibliography

The bibliographic information is inputted to machine readable form to compile a database. Various forms of output are possible, for example printed bibliographies, computer-output-microfiches (COM), magnetic tapes or diskettes for online retrieval systems, diskettes for microcomputer use and CD-ROMs. Current output forms are printed bibliographies and the online service. Previously also microfiches have been produced. In addition the bibliography will be distributed on diskettes in the near future.

The bibliography is available in microfiche form for the years 1970 - 1989 in three sets: 1970 - 1979, 1980 - 1985 and 1986 - 1989. For the moment the production of microfiches has been ceased and the printed version has been chosen instead.

The first Baltic Marine Environment Bibliography in printed form (Baltic Sea Environment Proceedings No. 43) was published in 1992. It covers the years 1986 - 1990. The printed bibliography will be published yearly and the next bibliography will cover the years 1991 - 1992.

The bibliography is also available as an online database. The online database covers references from the year 1970. The online service is offered at the Swedish host DAFA by appointment of the Swedish National Environmental Protection Board, at the German host DIMDI, Deutsches Istitut für Medizinische Dokumentation und Information, and at the Technical Research Centre of Finland. Online systems are connected to world-wide telecommunication networks and they are available all over the world.

What can be found from the the Baltic Marine Environment Bibliography?

There are only a few databases in the world dedicated to marine sciences. These include for example such large international databases as ASFA, BIOSIS and AGRIS. The Baltic Marine

Environment Bibliography obtains much of the material directly from authors, institutes and libraries and to a lesser extend from the monitoring journals and serials, which is the main method in case of large international databases. This means that the content of the Baltic Marine Environment Bibliography is unique and as such it is an important source of information for marine researchers and completes the information received from other information sources.

The subject coverage includes all aspects of the marine environment of the Baltic Sea, for example ecology, fauna and flora, fisheries, hydrography, pollution, environmental impact, research, planning and administrative measures. Noticeable part of references deal with pollution problems. They cover nearly 40 % of the references.

The main language of the documents is English (46 %). Other languages include for example Swedish (13%), Russian (10 %) and German (10 %). 44 % of the original documents are journal articles, 31% are monographs and 25 % are monograph chapters.

All references have the title and keywords in English. From the year 1990 abstracts have been added to the bibliographic references. References are also augmented by classification codes. For the material since 1980 the classification and thesaurus of the Aquatic Sciences and Fisheries System, ASFA of FAO have been used. In the earlier phase an own classification system was used.

How the original documents can be obtained?

The original documents are deposited in officially nominated contact libraries in every Baltic Sea state. The documents can be ordered as loans or photocopies trough local scientific libraries from the contact libraries.

Example of a reference (journal article):

```
AU:  Floderus, S.; Pihl, L.
TI:  Resuspension in the Kattegat : impact of variation in wind climate
     and fishery
SP:  Estuarine, coastal and shelf science vol. 31(1990):4. - Pp. 487-498
LA:  eng LS: eng  SCY: se  DT: a
cc:  2264, 2168
CW:  resuspended sediments, trawling, wind waves, climate, sediments,
     fisheries
FT:  Kattegat
AB:  The recurrence of various agents of fine sediment resuspension in
     the Kattegat Sea, notably wind-induced wave action and demersal
     trawling, and their seasonal variation and long-term trends have
     been estimated. A comparison between the sediment-water interface
     and the spatial distribution of theoretical wind/wave impact
     indicated that the sediment is resuspended by further agents at
     depths below the permanent halocline between 10 and 20 m depth. The
     climatic deterioration in 1940-70 had a significant influence on
     the recurrence of wind-induced resuspension, although this was
     mostly limited to a 10-30 degree shortening of the recurrence
     period. On the other hand, a quantification of the effect of
     demersal trawling in the same period suggests a total shortening of
     recurrence at bottoms below the halocline by 75-85 degree in the
     autumn and winter, and with one order of magnitude (90 degree) in
     spring and summer, compared with the effect of waves only in the
     1930s; resuspension caused by near-bottom unidirectional currents
     was not quantified. At these deeper bottoms, resuspension
     conditions have approached those prevailing at shallow bottoms
     above the halocline.
```

Baltic Marine Environment Bibliography statistics
As of June 1993

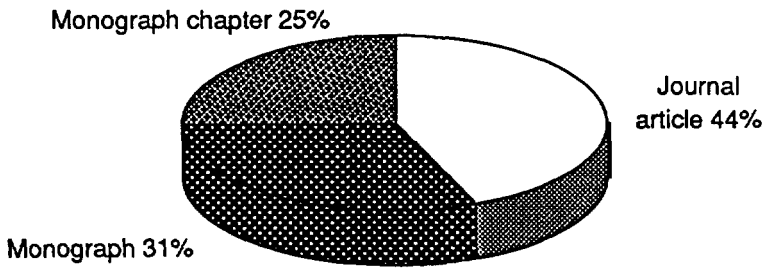


Figure 1. Distribution of references by document type

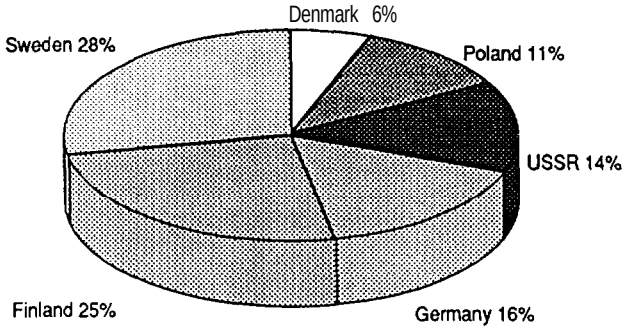


Figure 2. Distribution of references by country of origin

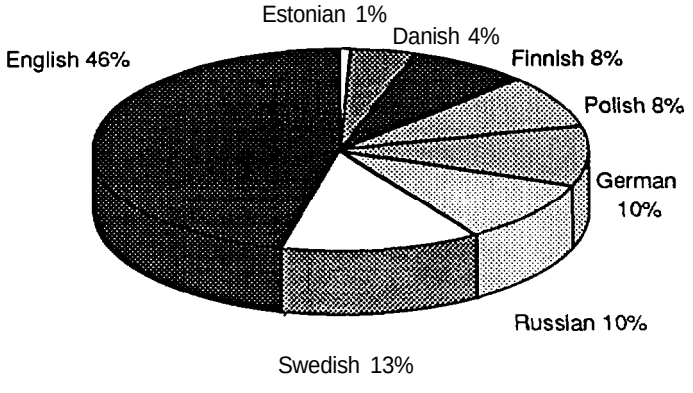


Figure 3. Distribution of references by language

Baltic Marine Environment Bibliography statistics

As of June 1993

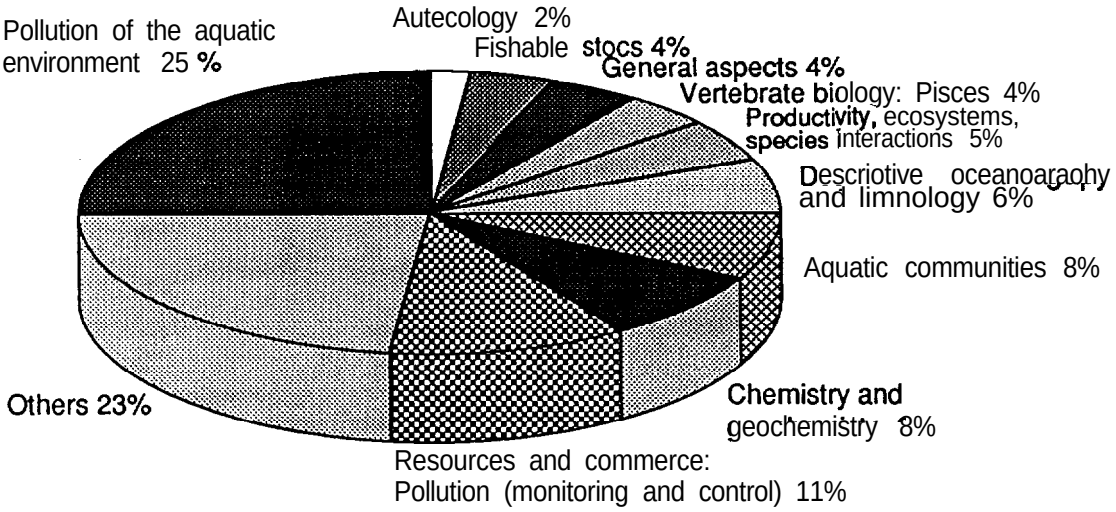


Figure 4. Distribution of references in major subject classes

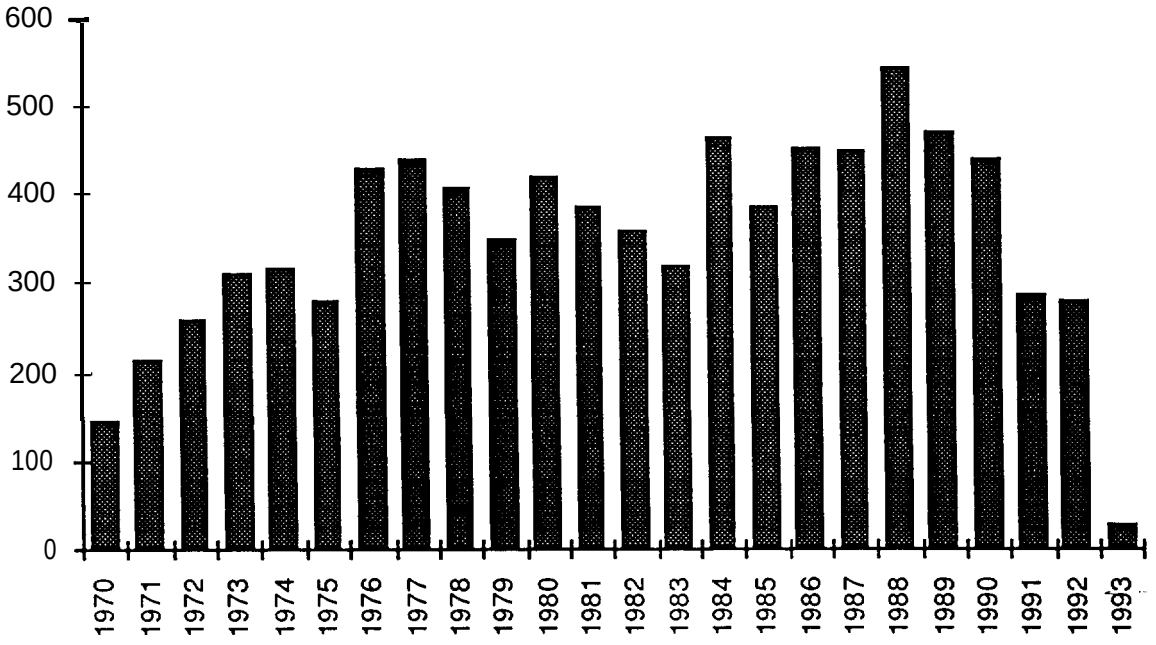


Figure 5. Annual number of references added to the database

Baltic Marine Environment Bibliography

Samples of typical entries with explanations

Untersuchungen zur Variabilität der sonnenlichtangeregten Fluoreszenz von Phytoplankton in der Ostsee im Hinblick auf Fernerkundung = Investigations concerningthevariabilityoffluorescence of phytoplankton induced by radiation in the Baltic Sea with regards to remote sensing / Stegman, P. M. - Kiel : Christian-Albrechts-Universität, 1987. - 155 p. - (Berichte aus dem Institut für Meereskunde an der Christian-Albrechts-U., ISSN 0341-8561 ; 169). - (Summary in English and German) (Dissertation) (de)

Keywords: fluorescence, phytoplankton, remote sensing, upward irradience, Baltic, Kiel Bight

Title of an article, report, paper etc. in original form

English translation of the document title, if originally written in some other language

Author(s)

***Publishing information** (Place ofpublication, publisher, year of publication, pages, name and ISSN-number of serial publication, serial number)*

Language of the summary

***Notes; Two digit codefor the country which has submitted the original information** (Country codes are: dk=Denmark, fi= Finland, de=Germany, pl=Poland, se=Sweden, su= USSR)*

Keywords

The composition, distribution and flux of PCDDs and PCDFs in settling particulatematter (SPM) - asediment trapstudy in the northern Baltic / Broman, D. & Näf, C. & Zebiihr, Y. & Lexen, K. Chlorinated dioxins and related compounds 1988 : proceedings of the 8th International Symposium held at the University of Umeå, Umeå, Sweden 21-26 August 1988. - *(Chemosphere, ISSN0045-6535;19(1989), 1-6.* - Pp. 445-450) (se)

Keywords: suspended particulated matter, sedimentation, pollutants, chlorine compounds, polychlorinated dioxins, polychlorinated dibenzofurans, Stockholm archipelago, Åland Sea

Title of an article, report, paper etc. in original form

Author(s)

Information about the source publication

Journal title, ISSN-number, volume, publ. year, number, pages *)

***Two digit code for the country which has submitted the original information** (Country codes are: dk= Denmark, fi=Finland, de= Germany, pl=Poland, se=Sweden, su=USSR)*

Keywords

**) If the document is apart of a monograph and the source monograph is published also in a journal (see the example) or the document is a journal article, then the journal information is written in italics.*

HELCOM SEMINAR
for Experts from Estonia, Latvia, Lithuania and Russia
on the implementation of HELCOM arrangements,
other international instruments and related matters

Riga, Latvia

30 August - 3 September 1993

Main lectures in the field of the Maritime Committee (MC)

The Tasks and Aims of the Maritime Committee of the Helsinki-Commission

1. MC tasks in general

Within the framework of the Helsinki Commission the Maritime Committee (MC) is responsible for the elaboration of environment protection measures as far as maritime shipping is concerned. The work of MC differs from that of the other committees in two aspects particularly:

a) The prevention of pollution from ships requires binding regulations covering territorial waters as well as the high seas.

b) As shipping is international by nature relevant regulations must be applied by all ships, i.e. also by those ships not flying the flag of a state bording the Baltic Sea.

As a consequence the task of MC must be to promote the adoption of appropriate international regulations and to look for their effective and harmonized implementation by the Baltic Sea States.

1.1 Promotion of international regulations

The promotion of international regulations cannot be done on a regional level, only, but must be dealt with on a world wide international level. Therefore, the IMO is the most appropriate international forum. To reach decisions by IMO in the interest of the protection of the Baltic Sea environment, it has been proven to be very beneficial, if the Baltic Sea States undertake common actions. This means that they must closely co-operate within IMO by taking common initiatives and by co-ordinating their position with regard to those matters relevant for the

Baltic Sea area. This requires a lot of preparatory work which is a main task of MC. In addition the Baltic Sea States hold the so-called BMCM meetings (Baltic maritime co-ordination meetings) immediately before MEPC meetings of IMO with the aim to co-ordinate their position.

1.2 Implementation of regulations

The success of international regulations depends on their effective implementation. This can be promoted by a regional co-operation. Therefore, its the task of MC to look for the effective and harmonized implementation of IMO decisions by the Baltic Sea States. These IMO decisions do not only include international conventions and their amendments – such as MARPOL 73/78 –, but also resolutions, guidelines, standards and other legal instruments. MC has to identify such decisions which are applicable for effective and harmonized implementation and, when deemed necessary, to elaborate measures to facilitate such implementation and to follow the implementation status. This also includes the exchange of information on experience gained with regard to the application of international regulations and their enforcement.

2. Working arrangements

The MC work is done mainly by the Committee itself; that means through the annual MC meetings which take place at different places around the Baltic Sea coast. If additional expert work is necessary ad hoc working groups may be established under the authorization of the Commission. For the time being MC has established a working group dealing with airborne pollution (MC Air), a further working group on reception facilities (MC Rec) is pending. In addition MC makes use of the lead country system, if appropriate. Under this system a member country volunteers to make detailed investigations on a certain item and to elaborate proposals for decision. In case there is no need for a working group, but an expert discussion is helpful for the preparation

of MC decisions, informal meetings upon the invitation of a member country are taken into account. If a broader expertise is needed, seminars are to be arranged. All these activities cause a very heavy work load for the Helcom Secretariat, resulting in papers in preparation of all meetings, in reports, compilations and even in publications.

The progress to be achieved in the annual MC meetings depends on the thorough preparation by the member countries. Sometimes the work suffers from the fact that papers are submitted too late and that the participants are not in a position to come to a conclusion so that the subject has to be postponed for another year.

The work of MC results in principle in

joint submissions to IMO by the Baltic Sea States

draft recommendations to be adopted by the Helsinki Commission

the exchange and evaluation of information presented by member countries with the aim to improve the implementation and enforcement of anti-pollution measures.

3. MC subjects

The subjects MC has to deal with to prevent marine pollution by ships cover operational as well as accidental discharges from vessels of any type whatsoever including, among others, pleasure craft and platforms.

3.1 Operational discharges

The minimization of discharges due to the operation of ships is the main subject of MARPOL 73/78 dealing with oil, noxious li-

quid substances carried in bulk, harmful substances in packaged form, sewage and garbage. Through the Helsinki Convention the Contracting Parties are obliged to apply the MAPPOL provisions. As Annex IV of MARPOL 73/78 is not yet in force the Convention contains corresponding regulations on the discharge of sewage. The work of MC aims at promoting the further development of these provisions and at the effective and harmonized implementation.

Very important initiatives have been taken to amend MAPPOL 73/78 with regard to air pollution from ships. Concrete proposals have been elaborated by an MC working group (MC Air), which are further considered by IMO, and have already led to decisions of the Helsinki Commission on first measures in the Baltic Sea Area.

The minimization of operational discharges depends to a great extent on the availability of sufficient reception facilities in the Baltic Sea ports; this includes financial regulations which to do not create a disincentive to use reception facilities. Since its start MC has been focussing on this subject.

In addition an effective enforcement of the anti-pollution regulations is necessary. With this aim MC is working on a closer co-operation of the Contracting Parties with regard to control measures and the investigation and prosecution of violations. In this context port state control under the. Paris Memorandum of Understanding as well as surveillance at sea including airborne surveillance methods play an important role.

3.2 Accidental pollution

To contribute to the prevention of accidental pollution MC also deals with maritime safety matters. As concerns safety of navigation the items MC is considering cover reporting systems, deep draught routes and traffic separation schemes, pilotage services, fairway safety and traffic under winter conditions. In the light of the deliberations in IMO MC is also working on measures to increase tanker safety.

4. Conclusions

Taking all in all the work of MC has been quite successful. This does not only result in several amendments of the relevant Annex IV of the Helsinki Convention, but also in a great number of Helcom Recommendations aiming at an effective implementation of anti-pollution regulations, at supplementary measures and at a close co-operation in this respect. Joint actions within IMO have given proof of the Baltic Sea States' capacity to act as a "pressure group". Noting from the regular national reports that the MC recommendations have been implemented by the Contracting Parties it may be stated that maritime shipping is not the big environmental problem of the Baltic Sea.

In future the work in the maritime field should in particular concentrate on

- the development of further international regulations to prevent pollution from ships,
- the improvement of reception facilities in the Baltic Sea ports as the cornerstone of maritime protection measures,
- the strengthening of **enforcement measures** such as port state control, surveillance at sea, investigation and prosecution of violations.

The progress and further success of MC depends on the willingness of the Contracting Parties to make their contributions to this work. Estonia, Lithuania and Latvia are strongly invited not only to implement the relevant Helcom arrangements but also to participate with great activity in the MC work.

HELCOM SEMINAR 1993

Riga, Latvia

30 August - 3 September 1993

IMO CONVENTIONS IN THE FIELD OF MARINE POLLUTION PREVENTION, PREPAREDNESS AND RESPONSE

0. Khal imonov

International Maritime Organization (IMO)

International Convention for the Prevention of Pollution from Ships 1973 as modified by the Protocol of 1978 relating thereto (MARPOL 73/78)

The enormous growth in the maritime transport of oil and the size of tankers, the increasing amount of chemicals being carried at sea and a growing concern for the world's environment as a whole made many countries feel that the 1954 OILPOL Convention was no longer adeguate, despite the various amendments which had been adopted.

In 1969, the IMO Assembly - inspired partly by the Torrey Canyon disaster of two years before - decided to convene an international conference to adopt a completely new convention. The conference met in London in 1973.

The Convention which resulted is the most comprehensive international treaty covering maritime pollution ever adopted. It deals not only with oil, but will all forms of marine pollution except the disposal of land-generated waste into the sea by dumping (which was covered by another convention adopted the previous year).

Most of the technical measures are included in five annexes to the convention which deal respectively with the following:

Annex I - Oil

Annex II - Noxious liquid substances carried in bulk (e.g. chemicals)

Annex III - Harmful substances carried in packages (e.g. tanks and containers)

Annex IV- Sewage

Annex v- Garbage

The Articles

These deal with such matters as application, entry into force, amendments, etc. Parties are obliged to ban violations of the Convention and to take action against violators, ensuring that penalties "shall be adequate in severity to discourage violations".

Parties are required to co-operate in the detection of violations. Ships may be inspected by other Parties to see if any discharges have taken place in violation of the Convention.

Incidents involving harmful substances must be reported without delay, in accordance with Protocol I to the Annex: the Protocol covers such matters as the duty to report, methods of reporting, when to make reports and contents of the report.

Any disputes between Parties shall be settled (if this cannot be done by negotiation) in accordance with arbitration procedures contained in protocol II to the articles.

The Annexes to the Convention can be amended in a number of ways, the most important of which is the procedure known as "tacit acceptance". After an amendment has been adopted (at a meeting "expanded" to include all Contracting Parties, some of whom may not be members of IMO), the amendments automatically enter into force on a date fixed by the conference (the minimum period is 16 months) unless it is rejected (within 10 months) by one-third of Contracting Parties, or by Contracting Parties whose combined fleets of merchant shipping represent at least 50 per cent of world gross tonnage.

This procedure has been incorporated in all of IMO's technical conventions adopted since the early 1970s. It is a great improvement on the previous system, under which amendments to IMO instruments entered into *farce* only after being positively accepted by two-thirds of Contracting Parties (sometimes with a tonnage qualification as well). In practice, this procedure was so slow that amendments to instruments such as OILPOL, sometimes never did receive sufficient acceptances to bring them into force.

The other advantage of tacit acceptance is that it enables the conference to fix the exact date of entry into force of the amendment, a fact that is of considerable benefit to administrations and industry.

The articles also deal with entry into force. Although the Convention was to enter into force 12 months after being ratified by 15 States, the combined merchant fleets of which constitute not less than 50 per cent of world gross tonnage of merchant ships, Annexes III, IV and V are optional. This means that countries can make a declaration to the effect that they do not accept one or more of these Annexes.

The technical regulations of the Convention are contained in the Annexes. These are summarized below.

Annex I (oil pollution)

The oil discharge criteria contained in the 1969 amendments to the 1954 OILPOL Convention (see above) are maintained, but the total amount of oil which can be discharged into the sea is halved for new tankers to 1/30,000 of the cargo. For discharges from machinery spaces of all vessels, the ship must be under way, more than12 miles from land, and the oil content must be less than100 ppm (regulation 9).

The definition of oil is broadened to man petroleum in any form, including crude oil, fuel oil, sludge, oil refuse and refined products (other than petrochemicals) (regulation 1).

The discharge of oil is completely forbidden in certain "special areas"* where the threat to the marine environment is especially great. These include tie Mediterranean Sea, the Black Sea, the Baltic Sea, the Red Sea and the "Gulf Area" (regulation 10).

Parties to the Ccnventicn must ensure that adequate facilities are provided fcr the reception of residues and oily mixtures at oil loading terminals, repair ports,etc. (regulations 10 and 12).

An International Oil Pollution Prevention certificate must be issued to tankers of 150 gross tons and above and other ships of 400 gross tons and above, after survey (regulation 5). Its duration shall not exceed five years (regulation 8).

Oil tankers must be so constructed and quipped as to be able to operate the load on tcp system and to retain oily residues on board until they can be discharged into shore reception facilities. This includes slcp tanks, oil/water interface detectors, oil discharge monitoring and control systems, and suitable pumping and piping arrangements (regulation 15).

---

* "Special area" means a sea area where for recognized reasons, such as oceanographical and ecological conditions and the particular character of its traffic, the adoption of stricter discharge conditions is required.

All ships of 400 gross tons and above must be equipped with oily-water separating equipment, or a filtering system for discharges from machinery space bilges, together with on-board tanks for retention of oily residues from separators and purifiers. Vessels in excess of 10,000 gross tons must be equipped with oil discharge monitoring and control systems (regulations 16 and 17).

The limitations an tank size adopted in the 1971 amendments to the 1954 Oil Pollution Convention have been retained. The sizes vary according to factors such as the arrangement of tanks, the fitting of double bottoms, the installation of clean ballast tanks and so on, but on normal tankers centre tanks are limited to 30,000 cubic metres and wing tanks to 15,000 cubic metres (regulation 24).

New oil tankers of 70,000 deadweight tons and above must be provided with segregated ballast tanks (SBTs) of sufficient capacity to enable them to operate safely on ballast voyages without recourse to the use of cargo tanks for ballast purposes (except in very severe weather). The fact that SBTs are not used for carrying oil means that no oil-water mixtures are produced - and, consequently, no pollution (regulations 13 and 14).

New subdivision and stability requirements have been introduced to ensure that tankers can survive assumed side or bottom damage to a degree which is specified on the basis of the ship's length (regulation 25).

Tankers and other ships must carry and maintain an Oil Record Book in which all operations involving oil are to be recorded. The book can be inspected by the authorities of any State which is a Party to the Convention (regulation 20).

Annex II (liquid noxious substances)

This Annex contains detailed requirements for discharge criteria and measures for the-control ofpllutionby liquid noxious substances carried in bulk.

The substances are divided into four categories which are graded A to D, according to the hazard they present to marine resources, human health or amenities. Some 250 substances have been evaluated and included in a list which is appended to the Convention.

As with Annex I there are requirements for the discharge of residues only into reception facilities, unless various conditions are complied with. In any case no discharge of residues containing noxious substances is permitted within 12 miles of the nearest land

in water of less than 25 metres in depth. Even stricter restrictions apply in the Baltic Sea and the Black Sea. Parties to the Convention are obliged to issue detailed requirements for the design, construction and operation of chemical tankers which contain at least all the provisions of the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk.

Cperations involving substances to which Annex II applies must be recorded in a Cargo Record Book, which can be inspected by the authorities of any Party to the Convention.

Annex III (harmful substances in packaged forms)

Entry into force: 1 July 1992

This Annex applies to all ships carrying harmful substances in packaged forms, or in freight containers, portable tanks or road and rail tank wagons. The Annex requires the issuing of detailed standards on packaging, marking, labelling, documentation, stowage, quantity limitations, exceptions and notifications, for preventing or minimizing pollution by harmful substances. To help implement this requirement, the International Maritime Dangerous Goods Code was amended to cover pollution aspects. The amendment became effective on 1 January 1991.

Annex IV (sewage)

Status: The Annex will enter force after being accepted by 15 states where merchant fleets represents 50% of world tonnage. By May 1992 it had been accepted by 39 countries with 29% of world tonnage.

Ships are not permitted to discharge sewage within four miles of the nearest land, unless they have in operation an approved treatment plant. Between 4 and 12 miles from land, sewage must be comminuted and disinfected before discharge.

Annex V (garbage)

Entry into force: 31 December 1988

As far as garbage is concerned, specific minimum distances have been set for the disposal of the principal types of garbage. Perhaps the most important feature of this Annex is the complete prohibition placed on the disposal of plastics into the sea.

Progress towards ratification

Although it was hoped that the MARPOL Convention would enter into force quickly, in practice, progress was very slow. This was due largely to a number cf technical difficulties, in particular those associated with Annexes I and II.

In 1976 and 1977, a series of accidents involving oil tankers led to increased concern about safety and pollution. IMO was asked to call a conference to consider further measures - including changes to MARPOL and the International Convention for the Safety of Life at Sea, 1974 (SOLAS).

The 1978 MARPOL Protocol

When the International Conference on Tanker Safety and Pollution Prevention (TSPP) was held early in 1978, neither Convention was then in force and consequently could not be amended. The new measures were, therefore, contained in two protocols. The Conference decided that the SOLAS Protocol should be a separate instrument, and should enter into force after the parent Convention.

In the case of MARPOL, however, the Conference adopted a different approach. At that time, the principal problems preventing early ratification of the MARPOL Convention were those associated with Annex II. The changes envisaged by the Conference involved mainly Annex I and it was, therefore, decided to adopt the agreed changes and, at the same time, allow Contracting States to defer implementation of Annex II for three years after the date of entry into force of the Protocol (i.e. until 2 October 1986). By then, it was expected that the technical problems would have been solved.

This procedure, in effect, meant that the Protocol had absorbed the parent Convention. States which ratify the Protocol must also give effect to the provisions of the 1973 Convention: there is no need for a separate instrument of ratification for the latter. The 1973 MARPOL Convention and the 1978 MARPOL Protocol should, therefore, be read as one instrument, which is usually referred to as MARPOL 73/78.

The Protocol makes a number of changes to Annex I of theparent Convention. Segregated ballast tanks are required on all new tankers* of 20,000 deadweight and above (in the parent Convention SBTs were only required on new tankers of 70,000 deadweight and above).

Protocol also requires that SBTs be protectively located, that is, they must be positioned in such a way that they will help protect the cargo tanks in the event of a collision or grounding.

Another important innovation concerned crude oil washing (COW)**, which had recently been developed by the oil industry and offered major benefits. Under COW, tanks are washed not with water, but with crude oil - the cargo itself. The solvent action of the crude oil makes the cleaning process far more effective than when water is used and, at the same time, the mixture of oil and water which led to so much operational pollution iii the past is virtually ended. (There is usually a final water rinse but the amount cf water involved is very low.) At the same time, the owner is able to discharge far more of this cargo than before, since less of it is left clinging to the tank walls and bottoms. COW is accepted as an alternative to SBTs cn existing tankers and is an additional requirement on new tankers.

---

* New tankers are those ordered after 1 June 1979;whose keel was laid after 1 January 1980; cr were delivered after 1 June 1982.

** COW does present operational dangers because of the build-up of explosive gases in cargo tanks as the oil is unloaded. For this reason, the Protocol to the 1974 SOLAS Convention, whcih was adopted at the 1978 TSPP Conference and entered into force in May 1981, stipulates that an Inert Gas System (IGS) must always be used when COW is operated.

For existing crude oil tankers, a third alternative was permissible for a period of 2 to 4 years after entry into force of MARPOL 73/78 (i.e. until 2 October 1987 at the latest). This was called dedicated clean ballast tanks (CBT) and was a system whereby certain tanks were dedicated solely to the carriage of ballast water. This was cheaper than a full SBT system, since it utilized existing pumping and piping, but after ttie period of grace had expired other systems became mandatory.

The requirements of MARPOL 73/78, as they affect COW, SBS and CBT, are given in the table.

At entry into force (2 October 1983)

New tankers

Pra?uct 30,000 dwt + SBT/PL
Crude 20,000 dwt + SBT/PL, COW

Existing tankers

Crude 40-70,000 dwt	SBT or COW cr CBT	CBT option dropped after four years (i.e. 2 October 1987)
Crude 70,000 dwt +	SBT or COW or CBT	CBT option dropped after two years (i.e. 2 October 1985)
Product 40,000 dwt +	SET cr CBT	

Drainage and discharge arrangements have also been altered in the Protocol, which introduces regulations for improved stripping systems.

Some oil tankers operate solely in specific trades, between ports which are provided with adequate reception facilities. Some others do not use water as ballast. The TSPP Conference recognized that such ships should not be subject to all MARPOL regulations and they are consequently exempted from the SBT, COW and CBT requirements.

Survey and certification

It is generally recognized that the effectiveness of international conventions depends upon the degree to which they *are* obeyed and this, in turn, depends largely upon the extent to which they are enforced. The 1978 Protocol to MARPOL, therefore, introduced suicter regulations for the survey and certification of ships.

MARPOL 73/78 now *requires:*

* an initial survey before the ship is put into service or before an International Oil Pollution Prevention Certificate is issued;

* periodical surveys at intervals not exceeding five years;

* a minimum of one intermediate survey during the period of validity of the IOPP Certificate; and

* unscheduled inspection cr mandatory annual surveys must be carried out (in practice most governments have indicated a preference for mandatory annual surveys and IMO has, consequently, recommended that this alternative be used by all Member States).

In addition, the action to be taken when ships are found to be defective or substandard has keen more clearly defined.

The 1984 amendments

The first set of amendments to MARPOL 73/78 was adopted on 7 September 1984. The amendments entered into force, under the tacit acceptance procedure, on 7 January 1986.

The amendments are concerned with Annex I and are designed not only to improve existing provisions, but also to provide a practical solution to some of the problems involved in implementing the Annex.

The main points of the amendments are given below.

Regulation 10: The amendments introduce requirements for special equipment and procedures to prevent oily water being discharged into the sea in special areas - seas such as the Mediterranean, which have special environmental problem. Wastes cannot be discharged if the oil content exceeds 15 parts per million.

Regulation 13: The carriage of ballast water in cargo tanks is permitted in certain circumstances.

Regulation 13: The carriage of oil in the forepeak tank is banned.

Regulation 15: The capacity of slop tanks can be reduced from 3 per cent to 2 per cent of cargo carrying capacity on ships equippedwith SBT, CBT or COW. Requirements fcr slop tanks and certain other oil discharge and monitoring equipment are waived for ships operating on short voyages, or within 50 miles of lard, provided other conditions are met.

Regulation 15: Requirements fcr oily discharge monitoring and control equipment, and oily-water separating equipment, are waived for ships operating exclusively within special areas, or within 12 miles of land on "restricted" voyages, provided strict conditions are met.

Regulation 18: A basic principle of Annex I is that all discharges into the sea must take place above the waterline, but the amendments permit underwater discharge to take place from segregated ballast tanks, dedicated ballast tanks and some other tanks, providing that oil and water has separated sufficiently. The advantage of discharging below the waterline for SBTs is that pumps and extra piping are not required, while for tanks using gravity (the normal practice) procedures are greatly simplified.

Regulation 20: A number of changes have been made to the Oil Record Book which each ship (including non-tankers) is required to carry.

Regulation 21: The discharge of oily wastes from drilling rigs and other platforms is banned when the oil content reaches 100 ppm.

Regulation 25: This regulation is intended to ensure that tankers can survive assumed damage. The requirements vary according to the ship's length. The requirements have been considerably strengthened.

The 1985 amendments

Having, by the 1984 amendments, updated Annex I of the Convention, IMO turned its attention to Annex II. Like Annex I this had originally been adopted at the 1973 Conference, but unlike Annex I had never been updated.

The Annex was due to become effective on 2 October 1986 (3 years after Annex I), but it was clear that Annex II was not only outdated in many respects but also presented considerable difficulties as far as implementation was concerned. IMO, consequently, prepared a number of important changes to the Annex which were formally adopted at an "expanded" meeting of IMO's Marine Environment Protection Committee in December 1985. They entered into force on 6 April 1987.

Among the major changes were the following

* Survey and certification requirements were brought into line with Annex I (regulations 10-12)
* Restrictions on the carriage of category B and C substances were introduced (requlation 5A)
* A scheme for the mandatory pre-washing of cargo tanks was introduced (requlaticn 8)
* The Bulk Chemical Code and the International Bulk Chemical Code were made mandatory (regulation 13)
* A new regulation dealing with oil-like noxious liquid substances was included (regulation 14)
* The list of noxious and other substances appended to the Annex was revised
* The form of the Cargo Record Book was revised (regulation 9)

These amendments were designed to encourage shipowners to improve cargo tank stripping efficiencies, and they contain a number of specific requirements to ensure that both new and existing chemical tankers reduce the amount of residues to be disposed of.

As a result of these requirements it has been possible to adopt simplified procedures for the discharge of residues; furthermore, the amendments were expected to *reduce the* quantities of B and C substances that are discharged into the sea.

The Committee agreed that the proposed amendments to Annex II, by bringing about a significant *reduction in the* generation *of wastes* resulting from shipboard operations, would not only result in a remarkable reduction of marine pollution by noxious liquid substances from ships, but would also reduce drastically the environmental problems ashore involved with the treatment and ultimate disposal of wastes received from ships. In addition, the amendments provided for improved possibilities for executing effective port State control, thus ensuring full compliance with the provisions of the Annex.

At the same meeting, the MEPC decided that the implementation date of the Annex should also be deferred until 6 April 1987. If this had not been done, the Annex would have entered into force in October 1986 only to be changed in crucial aspects, including tie Certificate and Cargo Record Book, barely six months later. This would have imposed a considerable burden on Administrations and the shipping community.

Another important feature of the1985 amendments to MARPOL, was to make the International Bulk Chemical We mandatory. This Code also became mandatory (as far as safety aspects are concerned) on 1 July 1986, when amendments to the International Convention for the Safety of Life at Sea, 1974 (SOLAS) enter into force.

The MEPC expanded the Code to cover pollution aspects as well, and the MARPOL amendments have made the Cod@ mandatory from 6 April 1987. The effective inclusion of the IBC Code in MARPOL 73/78 is particularly important because the Code is concerned with carriage requirements, i.e. cargo containment, materials of construction, piping arrangements and so on.

Annex II itself deals with the discharge of cargoes.

The 1987 amendment

Adoption: December 1987

Entry into force: 1 April 1989

The purpose of the amendment, which affects regulation 10 of Annex I, makes the Gulf of Aden a 'special area', thus giving it greater pro-ion against discharges of oil.

1989 (March) amendments

Adoption: March 1989

Entry into force: 13 October 1990

One group of amendments affect the International Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (IBC Code). This is mandatory under both MARPOL 73/78 and SOLAS and applies to ships built on or after 1 July 1986.

A second group concerns the Code for the Construction and Equipment of Ships Carrying Dangerous Chemicals in Bulk (BCH). In both cases, tie amendments include revised list of chemicals. The BCH Code is mandatory under MARPOL 73/78 but is voluntary under SOLAS 1974.

The third group of amendments affect Annex II of MARPOL. The lists of chemicals in appendices II and III are replaced by new ones.

1989 (October) amendments

Adoption: October 1089

Entry into force 18 February 1991

The amendments make the North Sea a "special area" under Annex V Of tie convention. This greatly increases the protection of the sea aqainst the dumping of garbage from ships.

The 1990 amendments

Adoption: March 1990

Entry into force:

One of IMO's major achievements in recent years has keen the development of a new harmonized system of surveys and certification. The new system will align the survey and certification requirements of MARPOL 73/78 with those in the International Convention on Load Lines, 1966 and the International Convention on the Safety of Life at Sea, 1974 (SOLAS).

Atpresentthese requirements are not harmonized, with the result that the ship could have to go for a mandatory survey under a convention a few months after being surveyed in connection with another. By making the intervals between surveys the same, as far as possible, many mandatory surveys can be carried out at the same time.

Not only will this be beneficial for the shipowner, who will save timeand money, but it will also aid Government authorities who are responsible for carrying out the surveys.

Although tacit acceptance can be used to amend MARPOL this is not possible as far as SOLAS and the Load Lines Conventiors are concerned. In both cases the changes have been introduced by means of protocols which will enter into force 12 months after being accepted by 15 States whose combined merchant fleets constitute at least 50% of world gross tonnage.

The MARPOL amendments are expected to enter into force under tacit acceptance six months after t!!e protocols.

Other amendments will introduce the harmonized system into the IBC and BCH Codes. They will enter into force on the same date as the MARPOL amendments.

The 1992 amendments

Adoption: March 1992

Entry into force: 6 July 1993 (under tacit acceptance)

These amendments are generally regarded as the most important changes to be made to the Convention since the adoption of the 1978 protocol.

In the past MARPOL, the 1978 Protocol and the many

amendments which have been adopted over the years have been concerned mainly with minimizing operational pollution and they have concentrated minlyonnewships.

Although some of the 1992 amendments are concerned with operational pollution, two new regulations have been introduced which are designed to drastically reduce pollution resulting from accidents; and they apply to existing as well as new tankers.

The amendments - which are expected to enter into force on 6 July 1993 - will add two new regulations to Annex I.

Regulation 13F deals with new tankers of 600 dwt and above. These are tankers for which the building contract is placed after 6 July 1993; the keels of which are laid on or after 6 January 1994; or which are delivered on or after 6 July 1996.

Tankers of 5,000 dwt and above must be fitted with double bottoms and wing tanks extending the full depth of the ship's side. The regulation allows mid-deck height tankers with double-sided hulls, such as those developed by Japanese and European shipbuilders, as an alternative to double hull construction.

Other methods of design and construction may also be accepted provided that they ensure t!!e same level of protection against pollution in the event of a collision or stranding. These design methods must be approved by the MEPC based on guidelines which are to be developed by IMO.

Oil tankers of 600 dwt and above but less than 5,000 dwt, must be fitted with double bottom tanks and the capacity of each cargo tank is limited to 700 cubicmetres, uniess they are fitted with double hulls.

Regulation 13G is concerned with existing crude carriers of 20,000 dwt and above and existing product carriers of 30,000 dwt and above. The regulation is expected to take effect from 6 July 1995.

It makes provision for a.. enhanced programme of inspections to be implemented, particularly fcr tankers which are more than five years old.

With the exception of ships already fitted with double hulls, existing tankers must comply with the requirements of 13F not later than 30 years after their date of delivery. In addition, pre-MARPOL tankers must, not later than 25 years after their date of delivery, provide side or bottom protection to cover at least 30% of the cargo tank area.

Regulation 13G also allows for future acceptance of other structural or operational arrangements - such as hydrostatic balance - as alternatives to the protective measures spelled out in the Regulation.

The MARPOL 73/78 Convention has been ratified by 70 countries whose fleets comprise about 90% of the world merchant marine. In practice, virtually every tanker operating today complies with MARPOL 73/78 and the adoption of the amendments will have a major impact upon the *tanker* market.

It is anticipated that many older tiers which cannot be brought up to the new standard economically will be scrapped, and the MEPC recognised this by adopting a resolution on the development of ship scrapping capacity to ensure the smooth implementation of the amendments.

The resolution recommends Member Governments to take initiatives in co-operation with the shipbuilding and shipping industries, to develop scrapping facilities at a world-wide level, to promote research and development programmes and to provide technical assistance to developing countries in developing ship scrapping facilities.

The adoption of the amendments was first proposed in 1990 and originally involved oniy double hulls. At that time several of IMO's 136 Member States said that other designs should be accepted as equivalents and that measures for existing ships should also be contemplated. Last year a major study into the comparative performances of the double hull and mid-height deck tanker designs was carried out by IMO, with funding from the oil and tanker industry.

It concluded in January 1992 that the two designs could be considered as equivalent, although each gives better or worse outflow performance under certain conditions.

The other amendments adopted in March 1992 are concerned with operational oil pollution. me amount of oil which can be discharged into the sea as a result of routine operations has been drastically reduced.

The amendments - which are also expected to enter into force on 6 July 1993 - are concerned with discharges of oily wastes resulting from tank cleaning operations and with discharges from machinery space bilges on non-tankers of 400 grt and above. The latter are forbidden to discharge such wastes if the oil content exceeds 100 parts per million. The amendments reduce this to 15ppm (an amount which is virtually undetectable). me new standard will apply to all ships built after 6 July 1993 but there will be a five-year period of grace for existing ships (until 6 July 1998).

As far as tankers are concerned the existing regulations permit tankers to discharge oily wastes (outside special areas) at a rate of 60 litres per nautical mile. The amendments reduce this to 30 litres. There is no period of grace for existing tankers because there is no difficulty involved in altering the monitoring equipment.

The impact of MARPOL 73/78

it has been estimated that in 1981 some 1,470,000 tons of oil entered the world's oceans as a result of shipping operations. Most of it came from routine operations, such as discharges of machinery wastes and tank washing from oil tankers (the latter alone contributed 700,000 tons). Accidental pollution contributed less t!! 30% of the total.

By 1989, it was estimated that oil pollution from ships had been reduced to 568,800 tons. Tanker operations contributed only 158,000 tons of this.

The study, which was carried out by the National Research Council Marine Board of the United States credited MARPOL 73/78 with making "a substantial positive impact in decreasing the amountofoil thatenters the sea."

Although the 1978 Protocol did not enter into force until 1983, many ofits requirements were already being implemented. The "load on top" system, for example, had been mandatory since 1978 and was installed on a voluntary basis cn many tankers because it reduced the amount of oil wasted during routine operations (and thereby increased profits). The "new ship" and "new tanker" definitions included in the original 1973 Convention and the 1978 Protocol also meant that all tankers built after those dates already complied with MARPOL 73/78 requirements.

Nevertheless, t!!e impact of MARPOL 73/78 could be even greater in the years to come. One reason is economic. Successive increases in the price of oil in the 1970s brought the boom in tie oil trade to an abrupt halt. Demand for tankers fell and the result was a surplus of tonnage that has lasted ever since. This is particularly true of the large tankers which form the bulk of the world tanker tonnage. The great majority of them were built in the early to mid-1970s - before MARPOL 1973 and the 1978 Protocol were in force.

Many of these ships are now 15 to 20 years old and it is generally believed that many of them will be scrapped during the next few years, because it will be uneconomic to bring them up to the standards required by the 1992 amendments. They will then be replaced by new ships which will comply fully with all MARPOL 73/78 requirements.

This will almost certainly be beneficial to the marine environment. New ships tend to be safer than older ones simply because they are not so prone to break down. The new ships will also be built to higher standards in preventing both operational and accidental pollution: many VLCCs operating today are not fitted with segregated ballast tanks or crude oil washing - their replacements will be.

It is also hoped that during the next few years international shipping conventions - including MARPOL 73/78 - will be much more effectively implemented than in the past. other measures developed by IMO are intended to achieve this, for example, by emphasising the responsibilities of management and also monitoring the record of individual Governments in putting the convention into effect. The more effective implementation of port State control measures is also being encouraged.

The provision of adequate reception facilities for wastes is crucial to the successful implementation of MARPOL 73/78. They are required by four of the five annexes (Annex III is the exception) and the intention is that ships will be able to retain their wastes on board until they reach port.

Although facilities are mandatory, in practice they are often inadequate and in some cases still non-existent. In some countries facilities have been provided, but the charge for using them is so excessive that many ships avoid them.

Many countries which have large oil exports have so far failed to ratify MARPOL 73/78. Onereason is that they would be obliged to provide reception facilities for oily wastes. The costs of doing so could be very great, since most tank cleaning operations take place during the ballast stage of the tanker's voyaqe: the reception facilities required at an oil loading port, therefore, aremuchqreaterthan those needed elsewhere.

All of this makes life very difficult for the owners and crew of the ship concerned. MARPOL greatly limits the discharge of wastes into

the sea and in some areas bans it completely: but if the ports fail to provide the reception facilities the captain of the ship has to dispose of the wastes in some other way. The temptation is to do this illegally - and hope that no one finds out.

Despite these problems, however, the next few years should see a continued decline in the amount of wastes entering the sea as a result of shipping operations. Certainly MARPOL 73/78 provides an excellent legal basis for bringing this about.

The new generation of tankers that will enter service between now and the end of the century should be better protected against accidents and operational pollution than those in use today.

But no matter how good the ships are, much will still be depended on the way they are managed and on the competence of those who sail on them. The responsibilities for this rest with Governments, shipowners and operators and the crews themselves.

Definitions

The application of MARPOL 73/78 varies according to the age and type of the ship concerned. The 1973 convention, for example, refers to "new ships" while the 1978 Protocol refers to "new tankers" - as do the 1992 amendments.

The table below lists the different definitions.

	New ships (MARPOL 73)	New tankers (MARPOL 78)	New tankers (1992 amendments)
Contract date after	31 December 1975	1 June 1979	1 July 1993
Keel laid after	30 June 1975	1 January 1980	6 January 1994
Delivered after	31 December 1979	1 June 1982	6 July 1996

Jukka Häkämies
Secretary of International Affairs
National Board of Navigation

1 September 1993

FINLAND AND THE EUROPEAN PORT STATE CONTROL

1. A Short History

The European Port State Control has been in operation since 1982. **The cooperation was started between 11 EC countries and Norway, Sweden and Finland.**

The goals of the work have been defined in the Paris Memorandum of Understanding: Each Maritime Authority endeavours to inspect annually 25 % **of individual foreign merchant ships, which enter its ports. The objective is to control that ships fulfil the requirements of the most important IMO conventions on maritime safety and pollution prevention and that the labour conditions on board generally are in accordance with IL0 convention 147.**

The port state control cooperation is directed by a committee composed of a representative of each authority and of the EC commission. The Committee meets twice a year rotating in each member country.

The administrative work is carried out by a small secretariat (3 **persons) in Rijswijk in the Netherlands and inspection results are collected to the data centre of the French Maritime Administration in Saint** Malo.

To harmonize the inpection **work seminars are organized to field surveyors, nowadays twice a year. Important topics studied in seminars have included Marpol annex II** inplementation **and control of labour conditions in accordance with IL0 instructions. As a result of systematic training efforts surveyors have quite a comprehensive Surveyor's Manual.**

Ministerial Conferences have been organized at a few years' intervals to discuss the results of the activity and to give guidance for future work. Next Ministerial Conference will be in Copenhagen in September 1994.

The aim of the activity has been to remove substandard

ships from the traffic. During the first years many problems were encountered. Many countries did not have enough inspectors to achieve the goal of 25 %. The information system worked slowly with micro fiches and inspection practices varied a lot.

However, in the year 1984 already 7600 ships were inspected with a percentage of 19,7. In 1986 the figures rose to 8700 and 23,0. The last year statistics (1992) give figures 10450 and 23,8. The detention percentage has varied between 3 and 6.

In the course of years this control system has become an accepted and appreciated part of the world maritime safety work. Some big maritime nations have established cooperation with the European system. First USA and Canada, then the Russian Federation and Japan have participated in the PSC Committee meetings. In addition it must be noted that Maritime Authority of Poland adhered to the memorandum and started as the 15th full member on 1 January 1992.

IMO encouraged the early ratification of conventions during 1980s. Now you may note that many of the states, which during that decade have ratified the relevant IMO conventions, can not in practice fully implement the requirements of those conventions. The problem is partly caused by memorandum states, when they during 80s flagged out a large amount of ships to the flags of developing countries.

The 17th Assembly of IMO has therefore recommended (A.682 (17)) that port state control should be started in accordance with the European model also in other parts of the world. It is obvious that the tight European control network moves substandard ships to the other parts of the world. The preparatory work of new control schemes is proceeding well in Latin America and in the Asia Pacific region.

When the condition of ships and the competency of crews is in the first place flag state responsibility, IMO has furthermore established a Sub-Committee on Flag State Implementation to work out ways and means to remove difficulties experienced by some flag states in implementing IMO instruments.

2. Present situation

When the quantity of inspections in recent years has settled to 25 % level, a discussion on the quality of the activity was started. Some maritime disasters in Europe (Herald of Free Enterprise, Scandinavian Star, Aegean Sea, Braer etc.) have increased political pressure to monitor

the condition of ships more closely. The port state control system is therefore introducing a few new methods.

In addition to the control of certificates and technical details the compliance with operational requirements can be controlled. Some doubts were expressed that there is not a legal basis for operational controls in the IMO conventions (SOLAS, MARPOL). To remove this problem also IMO participated in making a list about clear grounds for operational controls (A.681 (17)). It can therefore be considered that these controls are at least in conformity with the spirit of these conventions. Because the operational controls are, however, time-consuming and require experienced surveyors and because the legal basis is still under discussion in some countries, their number has not yet been significant.

It has been agreed that in selecting ships for inspection special attention is paid to passenger ships, roro-ships, bulk carriers, tankers and other ships carrying dangerous goods in packaged form.

A new practice is now initiated when certain flag states are targeted for priority inspections. Flag states appearing in the three-year rolling average table of above average delays and detentions will be on that list. The secretariat has already informed those states appearing in the first list. The smallest fleets with a few inspected ships only have been left out, because incidental factors may influence the result.

Also ships which have had several recent deficiencies are under special attention.

The Committee has established a Working Group on Harmonization, which shall develop proposals for harmonization and improvements of inspection procedures. A clear instruction on when ships should be detained was adopted as a first result.

A challenge for the future years will be the building of cooperation with the new control schemes. Technical possibilities for rapid and even automatic exchange of information exist. The cost implications must, however, be considered carefully.

A goal in Europe is surely to recruit new members. Then we could get a tight inspection network in the Baltic as well. This development would have positive environmental influence.

3. Fort State Control in Finland

Port state control activity in Finland is directed and supervised by the Maritime Department of the National Board of Navigation. Practical inpections are carried out by the inspectors in the Maritime Districts.

Finland is divided into 4 maritime districts. In addition to district offices three dictricts have one regional bureau each. Inspectors are then placed in 7 towns along the coast. The places are district office locations Helsinki, Turku, Vaasa and Lappeenranta and regional bureau locations Kotka, Maarianhamina and Oulu.

We have 15 inspectors for port state control. No one works for port state control alone. They have various duties in inspection of maritime traffic and surveys of Finnish-flag domestic and foreign-going merchant fleet and fishing vessels.

During summer we have in use about 55 ports and during hardest ice winter more than 20 ports. When the length of the sea coastline is 1100 km, the control work means driving a car quite a lot.

Foreign ships made 13500 calls to Finland in 1992. Major part of calls were made by passenger ships from Sweden, Estonia, Germany and Russia. Also the main part of the cargo ship traffic comes from the Baltic and North Sea area.

When many ships are in regular traffic to Finland, the number of individual foreign merchant ships visiting Finland in 1992 was 1600. About 55 % of these ships have EC-EFTA-states' flags. The number has been increasing slightly, because the present basic figure, which was counted about five years ago, was 1480. The new figure means that next year our inspectors have to inspect'about 400 foreign ships.

Until now we inspected about 350 ships annually and the percentage has varied between 20 and 24.

When main part of these ships visit Finland every second week and are inspected only at six months intervals and when the most cross trade ships seldom come to Finland without calling Continental Europe first, it is sometimes difficult to find suitable ships in order to achieve our inspection quota.

Finland has been unofficially criticized about our low

detention percentage, which is supposed to mean inefficient inspections. The matter is not, however, that simple. Majority of ships inspected in Finland (68%) have flags (in order of size) of Russia, Germany, Sweden, the Netherlands and Norway. Those ships come from countries, which participate in the winter traffic and have low figures on the detention and deficiency lists. Therefore Finland has some difficulties to compete with some Central-European countries in detention percentage contest. Most substandard flag of convenience ships try to avoid sailing to Finland because of trade union activities in ITF wage agreement matters.

PSC inspections in Finland are free of charge.

Inspectors in the maritime districts have traditionally been captains with long merchant ship sea experiance. When districts have started to work more with the statutory surveys of Finnish vessels, some inspectors with engineering background were recently hired as well. This may improve the quality of inspections. We have also tried to send one or two inspectors to every seminar in order to learn about practices in other countries.

The maritime districts and the National Board of Navigation have a common office computer network. Herewith every district office has on-line connection to the Saint Malo Centre unit. Inspection data can be fed daily to the inspection file and inspectors can study the data of arriving ships and the possible in advance warnings in the mail box.

Port state control activity causes expenses for the administration. Annual contribution to the secretariat, computer lines and meeting participation may cost FIM 250000. The PSC secretariat estimated in 1992 the cost of one inspection cautiously to ECU 60. The figure is too low for the Finnish circumstances. If the price of one ispection hour is estimated to FIM 300, the cost of one inspection varies between 600 and 1200 mark. The total annual cost in Finland might be in US dollars about $ 100000.

The National Board of Navigation appreciate the port state control efforts as an important preventive measure to keep the Baltic Sea clean and safe. The implementation control of the MARPOL convention is one of the main parts of the port state control. International cooperation in this field is rapidly expanding. New participants are wished warmly Wellcome.

Figure 1

RELEVANT CONVENTIONS / CONTROL RULES

SOLAS **1974: REGULATION** I/19

MARPOL 73/78: **ARTICLES 5, 6 AND 7**

LOAD LINES 1966: ARTICLE 21

STCW 1978: ARTICLE 10 AND REGULATION I/4

IL0 147: ARTICLES 2 AND 4

Figure 2

Regulation 19 [P]
Control *

(a) Every ship when in a port of another Party is subject to control by officers duly authorized by such Government in so far as this control is directed towards verifying that the certificates issued under regulation 12 or regulation 13 of this chapter are valid.

(b) Such certificates, if valid, shall be accepted unless there are clear grounds for believing that the condition of the ship or of its equipment does not correspond substantially with the particulars of any of the certificates or that the ship and its equipment are not in compliance with the provisions of regulation 11 (a) and (b) of this chapter.

(c) In the circumstances given in paragraph (b) of this regulation or where a certificate has expired or ceased to be valid, the officer carrying out the control shall take steps to ensure that the ship shall not sail until it can proceed to sea or leave the port for the purpose of proceeding to the appropriate repair yard without danger to the ship or persons on board.

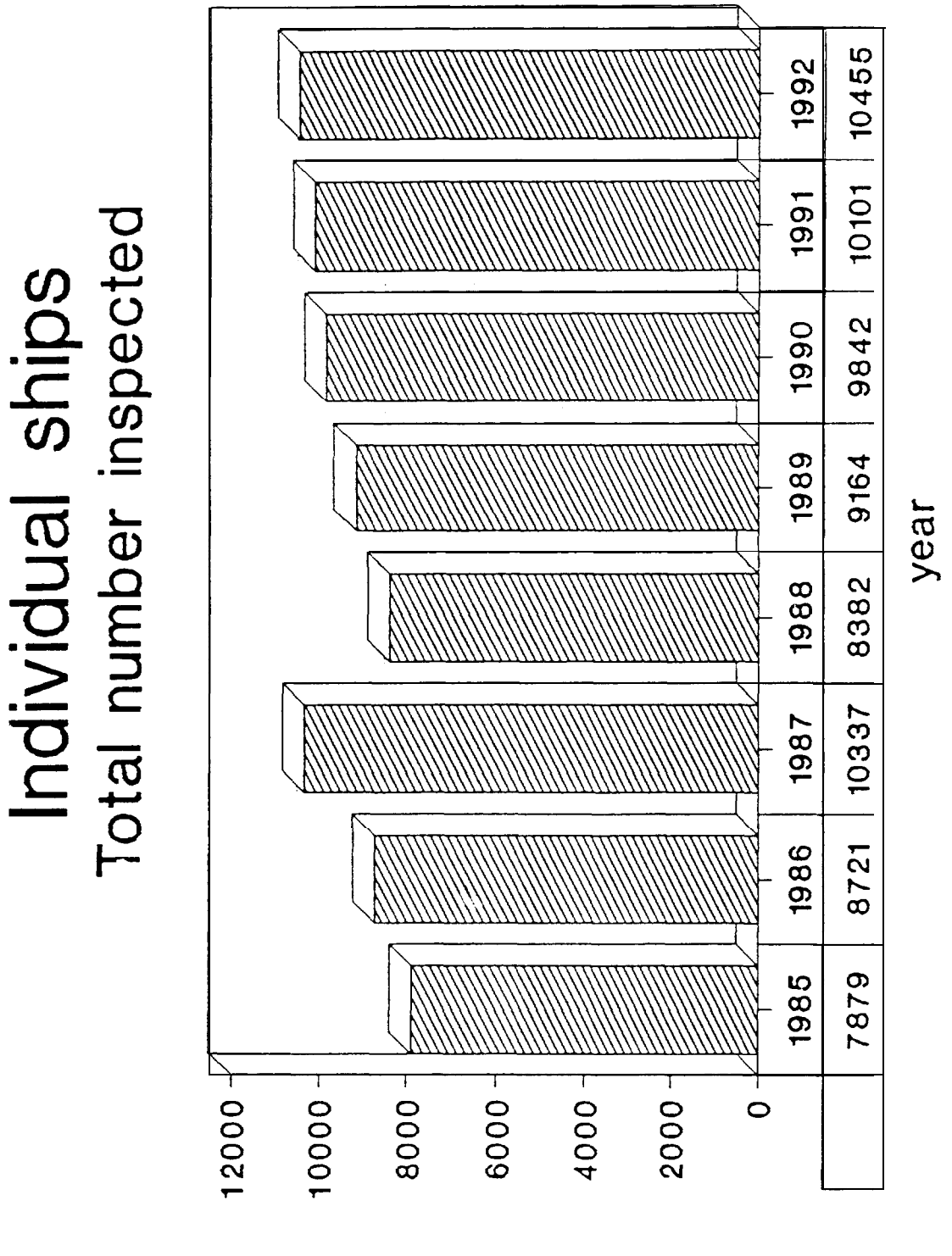
(d) In the event of this control giving rise to an intervention of any kind, the officer carrying out the control shall forthwith inform, in writing, the Consul or, in his absence, the nearest diplomatic representative of the State whose flag the ship is entitled to fly of all the circumstances in which intervention was deemed necessary. In addition, nominated surveyors or recognized organizations responsible for the issue of the certificates shall also be notified. The facts concerning the intervention shall be reported to the Organization.

(e) The port State authority concerned shall notify all relevant information about the ship to the authorities of the next port of call, in addition to parties mentioned in paragraph (d) of this regulation, if it is unable to take action as specified in paragraphs (c) and (d) of this regulation or if the ship has been allowed to proceed to the next port of call.

(f) When exercising control under this regulation all possible efforts shall be made to avoid a ship being unduly detained or delayed. If a ship is thereby unduly detained or delayed it shall be entitled to compensation for any loss or damage suffered.

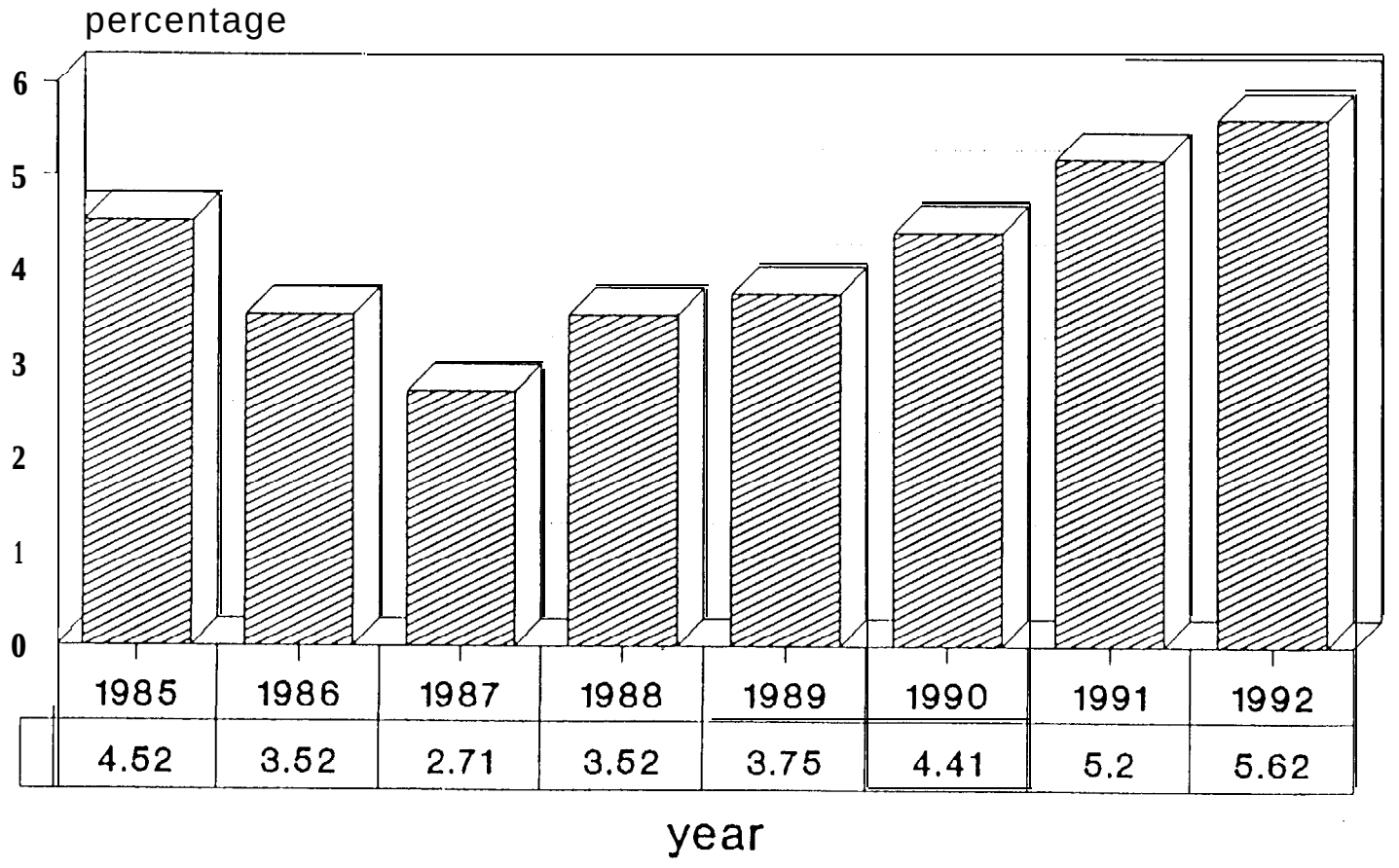
* Refer to the following resolutions adopted by the Organization: A.466(XII): Procedures for the Control of Ships; A.597(15): Amendments to the Procedures for the Control of Ships; A.681(17): Procedures for the Control of Operational Requirements related to the Safety of Ships and Pollution Prevention; A.682(17): Regional co-operation in the control of ships and discharges.

Figure 3


Individual ships
Total number inspected
12000
10000
8000
6000
4000
2000
0
1985
1986
1987
1988
1989
1990
1991
1992
7879
8721
10337
8382
9164
9842
10101
10455
year
source: MOU Secretariat

Detentions and delays

Percentage of. individual ships

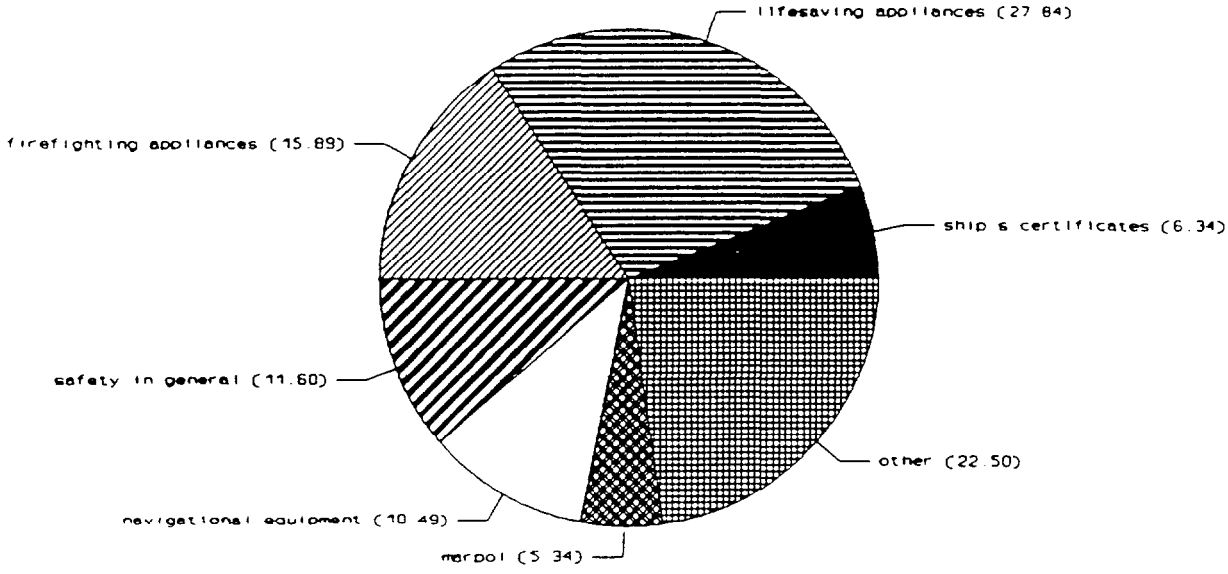


source: MOU secretariat

Figure 4

Charts of inspection results. Annex 2

Major categories of deficiencies in % of total number of deficiencies.



Charts of inspection results. Annex 2

Flag States with detention percentages exceeding 3-year roiling average percentage, to be targeted as priority cases for inspection in 1993/ 1994.

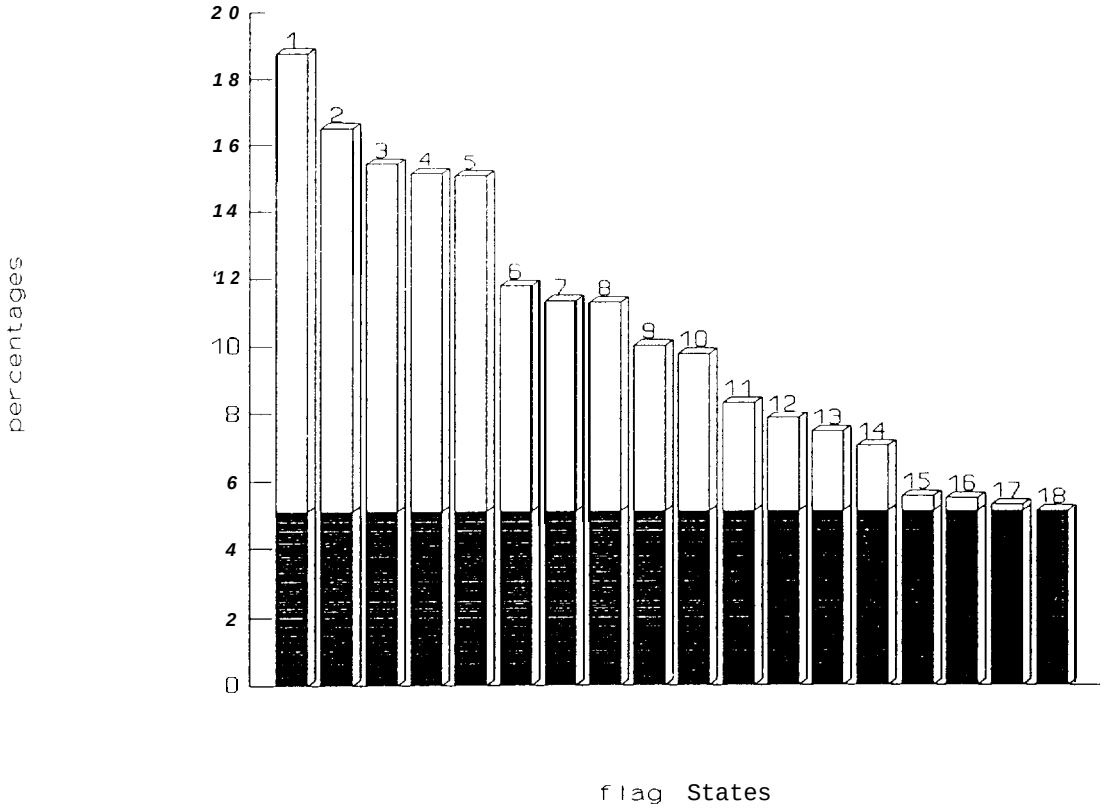
(detentions expressed in % of 3-year total of respective individual ships involved)

number of bar diagram	flag State	number of detentions 1990- 1992	total number of individual ships involved 1990-1992	detention percentage 1990-1992	average detention percentage 1990-1992	excess of average percentage 1990-1992
1	ROMANIA	66	352	18.75	5.11	13.64
2	ST. VINCENT AND GRENADINES	91	551	16.52	5.11	11.41
3	HONDURAS	64	415	15.42	5.11	10.32
4	INDIA	31	205	15.12	5.11	10.01
5	MOROCCO	17	113	15.04	5.11	9.93
6	MALTA	128	1086	11.79	5.11	668
7	EGYPT	19	168	11.31	5.11	6.20
8	IRAN	8	71	11.27	5.11	6.16
9	SYRIAN ARAB REPUBLIC	6	60	10.00	5.11	489
10	LEBANON	8	82	9.76	5.11	4.65
11	PANAMA	176	2117	8.31	5.11	3.20
12	CYPRUS	174	2218	7.84	5.11	2.73
13	TURKEY	42	564	7.45	5.11	2.34
14	ALGERIA	8	114	7.02	5.11	1.91
15	LIBERIA	86	1551	5.54	5.11	0.43
16	BAHAMAS	73	1329	5.49	5.11	0.38
17	ANTILLES. NETHERLANDS'	10	189	5.29	5.11	0.18
18	ANTIGUA & BARBUDA	32	625	5.12	5.11	0.01

Charts of inspection results. Annex 2

Flag States with detention percentages exceeding 3-year rolling average detention percentage, to be targeted as priority cases for inspection in 1993/1994.

(detentions expressed in % of 3-year total of respective individual ships involved)



Note ***1.***
Each bar diagram represents the 3-year rolling detention percentage (1990-1992) of individual flag States. The numbers of the bar diagrams correspond with the numbers used in the table reproduced on the opposite page, in which figures in more detail have been given.
The shaded area at the bottom of each bar diagram represents the level of the 3-year rolling average detention percentage over the years 1990-1992 (= 5.11 %).

Note 2.
In this diagram only those flag States have been included of which 60 individual ships or more were involved in a port State control inspection in the period 1990-1992. This diagram does not reflect the total number of calls at region ports by individual ships. A complete summary of detentions per flag State, irrespective of the number of individual ships involved, has been given in the table on pages 52-55 of this annual report.

Figure 8

COMMON POLICY ON DETENTION PROCEDURES

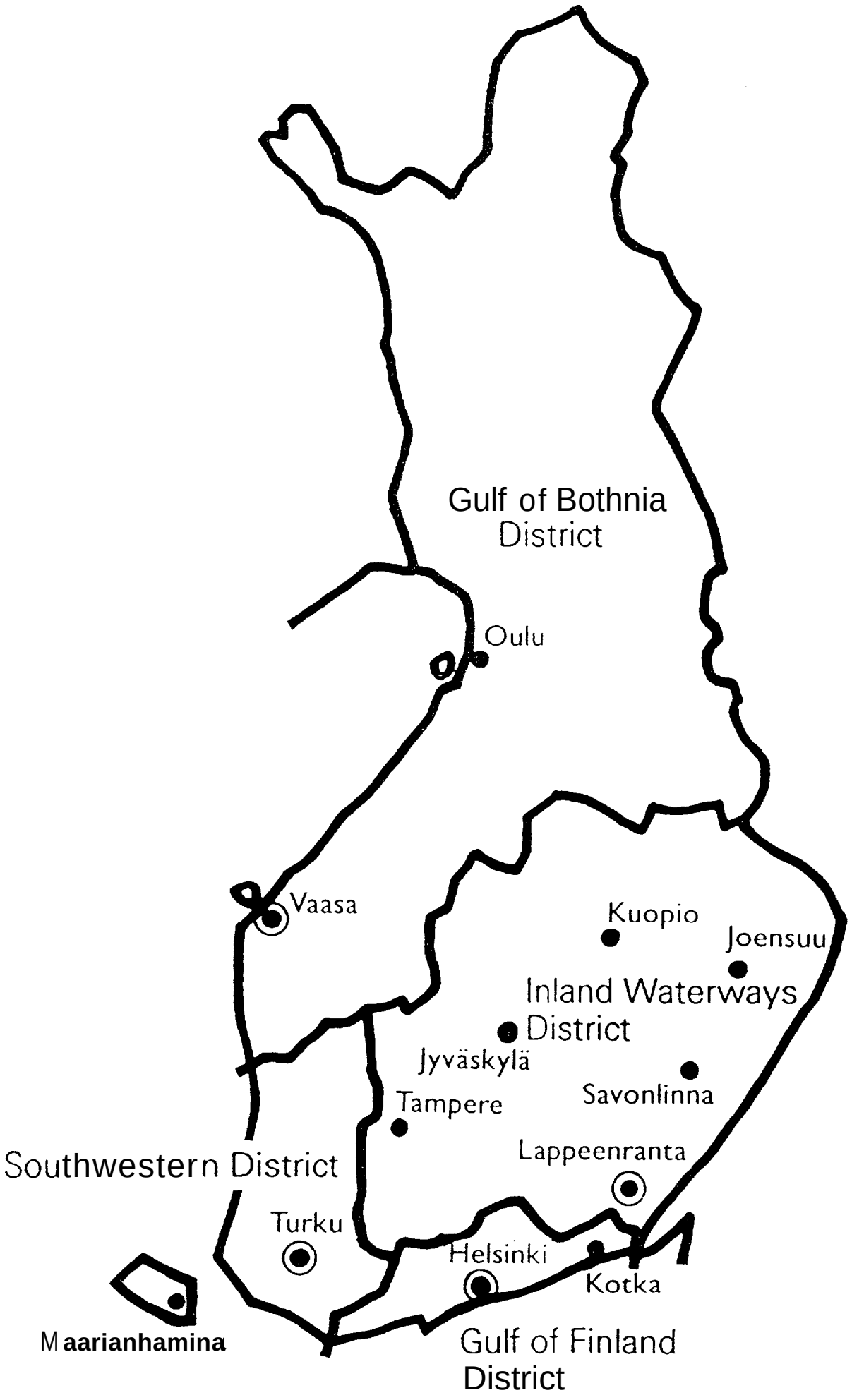
1. **TIMING:**

SHIPS WHICH ARE UNSAFE TO PROCEED TO SEA, SHOULD BE DETAINED UPON THE FIRST INSPECTION, IRRESPECTIVE OF THE TIME THE SHIP WILL STAY IN PORT.

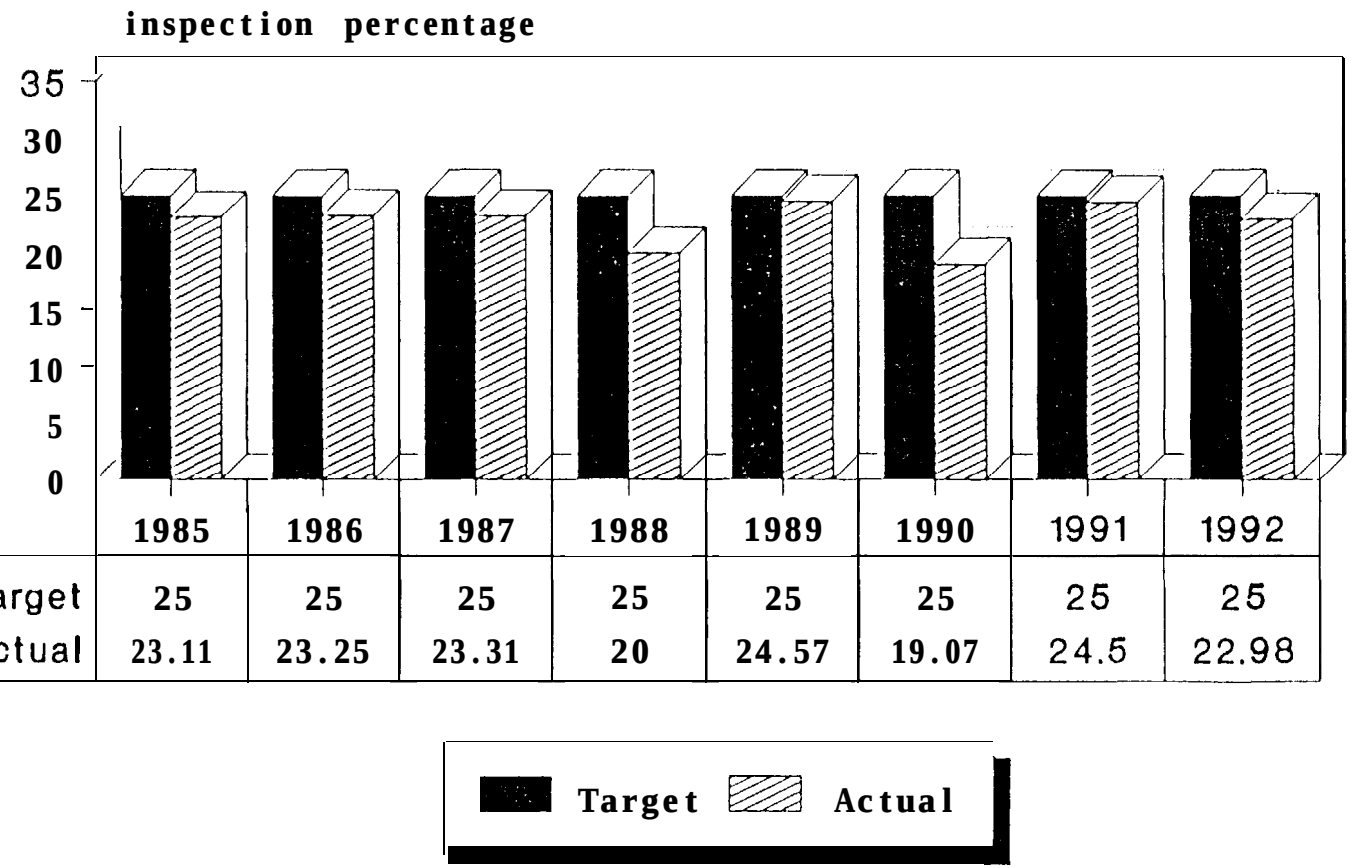
2. CRITERION:

THE SHIP SHOULD BE DETAINED IF THE DEFICIENCIES ON A SHIP ARE SUFFICIENTLY SERIOUS TO MERIT THE SURVEYOR RETURNING TO THE SHIP TO SATISFY HIMSELF THAT THEY HAVE BEEN RECTIFIED BEFORE THE SHIP SAILS.

Figure 9


Gulf of Bothnia
District
Oulu
Vaasa
Kuopio
Joensuu
Inland Waterways
District
Jyväskylä
Savonlinna
Tampere
Lappeenranta
Southwestern District
Turku
Helsinki
Kotka
Maarianhamina
Gulf of Finland
District

PSC inspection percentages
FINLAND



	1985	1986	1987	1988	1989	1990	1991	1992
Target	25	25	25	25	25	25	25	25
Actual	23.11	23.25	23.31	20	24.57	19.07	24.5	22.98

SOURCE: MOU SECRETARIAT

Figure 10

HELCOM SEMINAR

for Experts from Estonia, Lithuania and Russia
on the implementation of HELCOM arrangements,
other international instruments and related matters

Riga, Latvia

30 August - 3 September 1993

IMPLEMENTATION OF THE PROVISION ON **RECEPTION** FACILITIES

Prepared by:
drs. Henk Langenberg
Senior Policy Advisor,
Division for Traffic **Management,**
Ministry of Transport, Public **Works and Watermanagement**
Directorate General of **Shipping** and **Maritime** Affairs

1. Introduction

On the 32th session of the Marine Environment Protection Committee the Netherlands have taken the initiative to produce a Comprehensive Manual on the Provision of Port Reception Facilities. For this we had the following reasons:

1 Worldwide there is a lack of adequate reception facilities for ship generated waste. At the same time the shipping industry is faced with ever stricter discharge regulations. This means that for the shipping industry the situation gets worse every day.

2 The existing IMO-guidelines on reception facilities have become outdated. Since the introduction of MARPOL much experience in the field of reception and processing waste from ships has been gained.

3 In the Netherlands we have learned a lot of the mistakes that were made during the implementation of reception facilities. Other Member States can gain profit from our experience.

Fortunately the MEPC took over our initiative, and a working group was established to write the Manual. Since I am the chairman of the working group, I have the honour to provide you with some more information on what this manual is all about. The manual will be published in 1994 by the International Maritime Organization. Being a Dutchman, I see here some opportunities for commercial acitivities, so I strongly advise you to buy the Manual. It is regrettable however, that the profit will go to the IMO and not to us.

2. The structure of the Manual

The Manual is concentrated on the process of receiving, storing, treating and final disposal of waste from ships. It is dealing with oily waste (MARPOL Annex I), residues of noxious liquid substances transported in bulk (MARPOL Annex II) and garbage (MARPOL Annex V). Annex IV of MARPOL is not dealt with because this Annex is not yet in force.

Within the framework of the process described above, four main aspects are dealt with. These aspects are:

1 The development of a waste management strategy

2 Legal aspects

3 Planning aspects

4 Operation of reception facilities

In this lecture I also will pay attention to the financing and

cost-recovery for reception facilities and enforcement and control. In figure 1.1. all aspects are shown; also the relation between these aspects and the different chapters of the manual have been made visible.

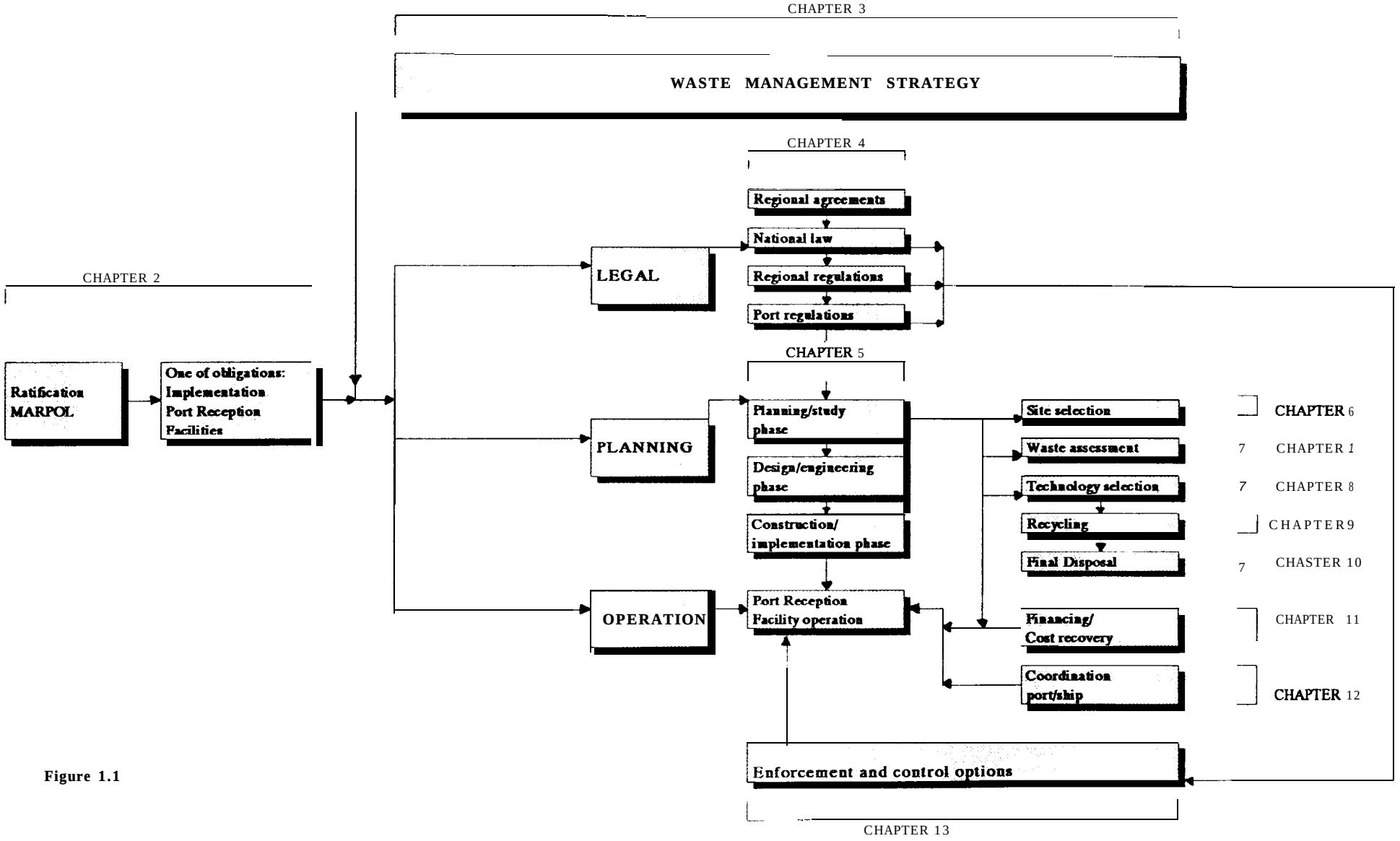

CHAPTER 3
WASTE MANAGEMENT STRATEGY
CHAPTER 4
Regional agreements
National law
Regional regulations
Port regulations
CHAPTER 2
Ratification MARPOL
One of obligations: Implementation Port Reception Facilities
LEGAL
CHAPTER 5
PLANNING
Planning/study phase
Design/engineering phase
Construction/ implementation phase
OPERATION
Port Reception Facility operation
Site selection
Waste assessment
Technology selection
Recycling
Final Disposal
Financing/ Cost recovery
Coordination port/ship
CHAPTER 6
7 CHAPTER 1
7 CHAPTER 8
CHAPTER 9
7 CHASTER 10
CHAPTER 11
CHAPTER 12
Enforcement and control options
CHAPTER 13

Figure 1.1

3. Development of a waste management strategy

Many ports have provided some sort of services for ships to dispose of their wastes, whether formalized or not, or adequate or not. However, it is obvious that ship-generated wastes are only part of a port's total waste stream. Similarly, all wastes received and generated in a port are part of the waste stream of a country. As MARPOL only addresses the provision of reception facilities for ships, the waste handling practices in the port and in a country are beyond the scope of the Convention.

Nevertheless, there are a number of reasons why the issue of ship-generated waste should not be isolated from the waste handling practices in a country.

It should be realized that reception facilities alone do not solve the problem. Waste, once received on-shore, should be dealt with in an environmentally sound way. Otherwise, actions taken to prevent pollution of the sea, may merely transfer the problem to land. For example, if ship generated wastes (or land generated wastes) are dumped inappropriately, soil or groundwater contamination may be the result.

A second reason is, while the proper management of wastes is expensive, that the costs for remedial actions (e.g. related to soil or groundwater contamination) are in general even higher. An integrated approach of waste handling that incorporates the entire life cycle of waste (from the moment of generation until its final disposal) may save considerable future expenses.

A third important argument is, that ship-generated wastes as well as land generated wastes may contain valuable materials, which can be reused. Discarding these wastes is an inefficient use of resources, and recycling options may be worthwile to explore.

Furthermore, waste minimization is an important subject. Unnecessary waste production adds a burden on waste transport, treatment and disposal facilities and should be avoided.

Development of a waste management strategy is a powerful tool to establish a coherent system of waste handling practices and facilities in a country.

Basically, a waste management strategy is a systematic problem approach, which outlines how, and by whom, waste is managed. It outlines the practical actions, such as collection, transport and disposal, and the legislative and administrative controls which ensure that these actions are carried out. A waste management strategy incorporates handling of both ship-generated wastes, which are received in a port, and land generated waste, either from domestic or industrial origin.

Obviously, a waste management strategy should become an

operating waste handling system, and therefore it should result in legislation, organisations, procedures and facilities that actually solve the problem.

A waste management strategy comprises a number of elements, which can be grouped in three main themes:

administrative and legal matters
technology
infrastructure and support services.

Experience in many countries has shown that effective waste management relies on a combination of measures rather than a single technical or regulatory initiative. The strategy preferably should aim at simultaneous rather than sequential action on the following fronts (which are not listed in order of importance):

1. **development of legislation to set acceptable standards for waste handling facilities, and to require monitoring and reporting of waste operations;**
2. **development of procedures and facilities to enforce the legislation, to monitor the wastes and the service provided to the ships and to undertake some practical disposal operations;**
3. **cooperation and support of all parties involved such as governmental organisations, port authorities and the industry;**
4. **establishment of safe and efficient reception, treatment and disposal facilities and safe management of existing facilities using implementation and enforcement programmes which are within the limits of available resources and skills, or those likely to be available;**
5. **implementation using short-term actions for immediate implementation and a phased approach to longer-term actions. Gradual, but simultaneous improvement in all elements of the strategy have been found to be more effective than a single major leap forward.**

There are many practical reasons for this, including the need for a great deal of learning and understanding of new procedures. Resource limitations, of course, is a practical reason for proceeding at a determined and measured pace.

1. ***It is better to do something than to investigate for too long.***

   Action cannot be taken if absolutely no information is available. However, it should be kept in mind that no matter how well the initial survey is executed, an accurate picture of the quantities and types of wastes will only be achieved once there are operating

facilities.

2. ***It is necessary to provide some money up front if actions are to take place.***

   The sums of money are not necessarily large, but they have to be strategically applied so as to get the best results. The initial expenditure should perhaps be to identify and publicize the problem so as to build support in principle for some type of action. The second stage involves spending money on training staff and on studying the options for action.

3. ***It will be useful1 to apply both incentives and disincentives.***

   Incentives are useful to obtain support from parties which will be involved in waste management, such as the industry. This incentives may for example have the form of subsidies on equipment, infrastructure and so on. Subsidies on investments are generally easier to control than subsidies on operating costs (e.g. operating costs of waste treatment units). Disincentives may have the form of penalties on violations of applicable regulations. Applications of incentives demonstrate the active interest of the government in waste management, while the application of disincentives demonstrate that active enforcement of regulations takes place. Both will stimulate an active approach and attitude of parties involved in waste management.

Useful first steps

A number of practical steps should, in total, achieve an early improvement in the waste collection and disposal situation, at a relatively modest effort and cost. It is emphasized again, that these steps should be pursued in parallel rather than in any particular sequence.

In particular, while it is necessary to have an appreciation of waste quantities and their environmental impact, care must also be taken to ensure that the first steps lay the foundations for a more systematic approach to waste management in the long-term.

1. ***Designate the responsible agency at the national level for initiating and co-ordinating the establishment of a waste management strategy.***

   If a waste management strategy on national level does not exist, the very first thing to do is to make a governmental agency responsible for developing the strategy. This may require to establish a new agency, which should be staffed and funded properly to execute its tasks and responsibilities.

The first task of this agency would be to prepare a plan, which outlines in general terms the procedure that will be followed to the development of a waste management strategy, a time schedule, parties involved, initial budgets and actions.

2. ***Learn as much as possible about the waste situation.***

Before solutions can be devised and the actual development of a waste management strategy can start, one must have a good idea of what the problems are, both in nature and in extent. Therefore, an assessment report is needed, in which the environmental problems are identified and quantified as good as possible for such an early stage. Preferably the report should draw some conclusions about short-term and medium-term environmental risks. Useful elements to learn about include:

- current waste handling facilities and practices in general and in the port;
- results of preliminary environmental quality monitoring, e.g. oil and litter on the beaches;
- an inventory of the types of waste and estimate of waste quantities which are likely to occur. See chapter 6 for more details concerning ship-generated waste. A complementary approach is to compile a rough inventory of chemicals used, manufactured or imported.

3. ***Obtain independent, outside advice regarding both the problems and treatment options.***

Independent review and advice by experienced outside practitioners can assist the government and local port authorities in coming to a decision about what initiatives are needed. Particular valuable is "horizontal cooperation", whereby personnel from one country help those from another. In view of the difficulty of transferring experience in the early stages of a country's learning cycle, it is preferably initially to have a series of short-term consultancies on specific well-defined topics, rather than a single massive study.

Outside advice will not always be necessary. Small ports and marinas may well be able to do their own assessments but should be given advice if there is a need for it.

4. ***Temporary measures of waste collection and disposal.***

Temporary measures are a useful tool to improve waste handling practices on short terms. Mostly, they comprise technical measures, such as use of temporary landfills and collection of waste. Temporary solutions allow early measurements of waste streams, and help to discover what

types and amounts of wastes are generated by the different categories of ships and industry.
A better knowledge of the size and nature of the waste stream allows a more accurate prediction of the types and size of such future facilities. Temporary facilities are also a useful way for management and operational staff to gain experience in waste handling, with public relations, industry liaison and ship-shore co-ordination.

Despite the immediate relief given by temporary solutions, it is important that they should be seen as a first step, leading on to more permanent measures.

It is the responsibility of the government to implement MARPOL 73/78, once it has been ratified. Subsequently, the actual provision of waste reception services can be carried out by private companies (for which this may provide a business opportunity) or by a public enterprise (under governmental responsibility).

Development of an inter-port strategy

There may be situations where specific factors may make an inter-port strategy for port reception facilities appropriate. In such a strategy, several ports make a joint effort to provide reception and treatment facilities. Such a strategy may be applicable on two levels:

a regional level, in which case ports in neighbouring countries co-operate;
a local level, where ports in one country co-operate.

Factors which may lead to such a concerted action include the quantities of waste received, costs, land requirements for disposal facilities, and/or types of treatment and disposal required. For example, the quantities of hazardous wastes usually tend to be relatively small whereas the level of expertise and treating costs to deal with the wastes are relatively high. Thus, the provision of an incinerator in each port may be difficult to justify, but a central facility serving more than one port could prove viable. Therefore, in the majority of developing economies an inter-port strategy can be a cost-effective solution.

Basically, an inter-port strategy implies that in all ports wastes can be received, which are subsequently transported to a central treatment plant. (N.B.: the option in which specific ports are not able to receive wastes violates MARPOL. However, this option can be applied as a first start of a programme, and it may be useful for those regions where there are networks of shipping lines making regular calls to certain ports along national or regional coastal areas).

4. Lesal aspects

Firstly a few remarks on legal aspects on an international level.
It has been generally accepted that when taking measures to prevent or control (marine) pollution, these measures should not lead to merely transferring wastes and pollution from sea to land. With respect to the MARPOL 73/78 Convention this means that a Party's responsibility does not end when it has ensured the provision of adequate facilities to receive ship's waste; within the requirements of the global framework there is also a responsibility to ensure the proper treatment and disposal of these wastes, along with other land-generated wastes.
The International Maritime Organization (IMO) is the only specialized agency of the United Nations wholly dedicated to maritime affairs. Over the years it has developed a co-ordinated scientifically-and technically-sound strategy for the protection of the marine environment from pollution generated by the shipping industry.

With respect to the provision of reception facilities, IMO has always stressed that Governments in assessing the adequacy of reception facilities should also consider the technological problems associated with the treatment of the wastes received and the ultimate disposal of garbage and of the residue and effluent from the reception and treatment facilities.

Therefore, States should be encouraged to take responsible action within their national programmes to consider such disposal and effluent standards along with other shore-generated wastes.

With respect to the provision of adequate port reception facilities, the obligations of Contracting Parties have been defined by MEPC to include the following. As the Contracting Parties acquire more experience with the implementation of the regulations, these definitions evolve over time.

Adequacy

As a minimum, the capacity of reception facilities at cargo unloading, loading, and repair ports and terminals shall be capable of receiving those residues and mixtures which are (normally) handled within that port and which must be discharged to reception facilities. All ports (including marinas and fishing ports) regardless of size will need to provide adequate facilities to receive Annex V wastes (garbage) and waste oil from engines, etc.

The receiving capability should be at least appropriate in time and availability to respond to the continuing needs of ships using the port.

Arrangements, needed to facilitate the discharge of residues, mixtures and all types of waste without causing undue delay to

ships, are made between the ship and the reception facility, such as prior notification of substances and quantities expected for discharge, piping or equipment required for discharge etc.

Governments shall ensure that the formalities for the use of reception facilities, particularly customs, health and environmental formalities, should be as simple and expeditious as possible in order to avoid undue delay of the ship or even to prevent ships from using the reception facility.

Governments shall ensure that the costs for receiving wastes should be covered in such a way that fees, if charged, would not provide a disincentive for shipmaster to utilize reception facilities. (See for compliance incentive systems chapter 11).

Undue delay
The master or the owner of a ship or his authorized representative shall notify the appropriate authority in good time, but generally not less than 24 hours before discharge is desired to take place.
The requisition shall contain all relevant information with respect to substances and quantities expected for discharge, expected time of arrival (ETA) and expected time of discharge, berth, etc. The time of transfer should be mutually agreed upon and transfer of waste should take place during the cargo-handling working hours of the port unless the ship's normal call at the port is not at a time within such hours.

Information
Governments shall supply to the Organization information on reception facilities available in ports, in accordance with the format set out by IMO.

Governments shall ensure the dissemination of appropriate information to seafarers and ship's agents, for instance by publishing a brochure on the availability of facilities for the reception of wastes and the procedures for the use of such facilities in their ports.

Ultimate disposal

Governments in assessing the adequacy of reception facilities should also consider the technological problems associated with the treatment of wastes received from ships and the ultimate disposal of garbage and the residues and effluents from the reception facility.

Although the establishment of waste management standards and effluent standards is not within the scope of the MARPOL 73/78 Convention, States are strongly advised to take responsible action within their national programmes to consider such standards along with other shore-generated wastes.

The technology of the treatment and separation process is a significant factor in determining the adequacy of a reception

facility as it is a primary means of producing an effluent of required purity for reception facilities and for ensuring that ultimate disposal of residues, mixtures and all types of waste is environmentally safe.

Adequacy at a regional level

The definitions given in the previous paragraph all refer to adequacy at a port level. Each Contracting Party has the duty to ensure that the ports and terminals under its jurisdiction comply with reception facility requirements of the Convention. At a regional level the term adequacy also plays an important role.
When ships can dispose of their wastes only in a few ports in a region, this will either mean that these ports carry the burden for the whole region (i.e. receiving wastes that should have been disposed of in other ports) or (even more likely) that ships are more inclined to dispose of their wastes illegally. If the area is designated as a Special Area, a lack of adequate reception facilities in a few ports has even greater implications.

When a particular sea area is designated as a Special Area for one or more Annexes, ships have little or no possibility left to dispose of their wastes at sea. This means that ports within a Special Area have a special responsibility to ensure the provision of adequate reception facilities in all ports to receive these wastes. The Special Area status cannot come into effect until there is a sufficient number of reception facilities available in that area.

Only a few Special Areas have come into effect, due to the necessity for reception facilities. One of the reasons for this is that with the entry into force of MARPOL 73/78 and the implementation of measures to reduce the generation on board of wastes, many States were reluctant to invest in facilities which might be fully utilized only for a limited period. While it is certainly the case that waste minimization on board progresses steadily, it is also true that there is a general trend to make the discharge standards for ships stricter than they were sofar.
When ships are less and less allowed to discharge their wastes into the marine environment, they will have to rely more than ever before on reception facilities.

For a Special Area to come into effect, a concerted effort is required from all Governments of States bordering such an area to ensure that their ports do provide adequate reception facilities.

Technical cooperation

Article 17 of the Convention addresses the promotion of technical co-operation. The Parties to the Convention shall promote, in consultation with the Organization and other

international bodies, with assistance and co-ordination by the Executive Director of the United Nations Environment Programme, support for those Parties which request technical assistance for:

(a) the training of scientific and technical personnel;
(b) the supply of necessary equipment and facilities for reception and monitoring;
(c) the facilitation of other measures and arrangements to prevent or mitigate pollution of the marine environment by ships; and
(d) the encouragement of research; preferably within the countries concerned, so furthering the aims and purposes of the present Convention.

On a national level, legislation is one of the main elements of integrated waste management. The preparation and implementation of legislation and regulations is one of the key tasks of Governments.

Considerations such as the constitution of the individual country concerned, whether it is a Unitarian state or a federation, and the distribution of administrative powers have a strong influence both on the extent to which legislation on waste management is possible and the form in which legislation can be made, implemented and enforced. The economic situation of the country may be an equally limiting factor for the effectiveness of the legislation.

Waste handling legislation can be addressed at different administrative levels, each with their respective regulations.

MARPOL does not prescribe how wastes should be handled and treated, once they have been delivered to a reception facility. Additional regulations on national level and/or lower levels of authority is therefore required to ensure environmentally sound processing and disposal of wastes.

National legislation should serve the following purposes with respect to MARPOL:

1. it should connect MARPOL with regional agreements (if applicable), national law and local regulations and give effect to the provisions of the Convention, including its protocols, annexes and appendices;
2. it should focus on how to implement and enforce the MARPOL 73/78 Convention once the Convention has been ratified;
3. it should give the appropriate authority the power to enforce the legislation that incorporates the requirements of the Convention and its Annexes;
4. it should set general policy and grant power to the appropriate authority to issue detailed regulations.

The basic principles of the waste management strategy should be reflected in the legislative framework that will be

developed and it should address also other areas than ship-generated waste. Due regard should be given to pre-disposal options, such as

- minimization of waste generation
- recycling of waste.

If in a country legislation for dealing with land-generated wastes already exists to a certain extent, it should be reviewed prior to development of complementary legislation on ship-generated wastes. This will contribute to development of a coherent legal structure and prevent proliferation of laws and regulations which are difficult to survey and enforce, show overlaps or gaps or are otherwise deficient or susceptible to conflicting interpretations.

If discharge standards are developed for reception facilities, the standards of MARPOL applicable to discharges of ships should be taken into account, to avoid shifting pollution from the sea by ships to pollution by land-based installations (for example, if ships are allowed to discharge wastewater with 15 ppm of oil, it is not desirable to allow 100 ppm for a reception facility).

It is recommended that there are provisions in the relevant legislation which incorporate an easy amendment procedure for revisions in more detailed standards and subordinate regulations. Efforts should be undertaken to streamline national amendment procedures to ensure that MARPOL regulations become effective at a national level at the same time they take effect internationally. Legislation should be broad enough to authorize the appropriate authority to implement any revisions to the Convention and its Annexes.

Governments may be of the opinion that the MARPOL 73/78 Convention is self-executing, which is to say that its provisions constitute a body of immediate applicability. Administrative regulations required for the practical application can be dealt with separately by way of Codes of Conduct, guidelines or other appropriate mechanisms.

For each country, the legislative process will have its own characteristics and procedures. However, it is recommended to use local expertise of parties involved in and affected by the waste management strategy and the forthcoming legislation.

Control mechanisms

One of the basic legal requirements for the implementation of a reliable system of waste management is the establishment of comprehensive control mechanisms. These mechanisms are necessary to ensure that the technical and organizational methods defined are used in practice and that dumping or other illegal practices are avoided.

Control of wastes can only be fully realized if adequate monitoring systems are in place; control means that competent authorities can act rapidly to assure that the possibility for inappropriate handling of the wastes is minimized.
In case mishap does occur, control means that the authorities have the means, both legal and financial, to act quickly in order to reduce any dangers posed to human health and/or the environment.

Monitoring of wastes means that the whereabouts of such wastes are known at all times, i.e., from 'cradle to grave' and that the wastes do, in fact, arrive at an appropriate facility for treatment, storage and/or disposal.

The primary means of enforcing a comprehensive waste management strategy, and hence the main enforcement duties of the regulatory authorities, will be:

licensing of waste handling operations and facilities;
routine and non-routine surveillance and monitoring of licenced operations, with powers of revocation;
collection and analysis of properly completed documentation and other data from waste producers, storage depots, carriers and treatment or disposal facilities;
prosecution for illegal activities;

5.Planning aspects

For small ports extensive port reception facilities are usually not necessary, although large ships may also call at small ports. In this case the construction phase can usually start quite soon after the assessment of the expected waste quantities, carried out in a study phase. In small ports it may be feasible to install small treatment equipment or even to provide only facilities for reception of wastes and to transport the wastes to a central treatment plant.

The implementation of port reception and treatment facilities can be divided into a number of phases, which a project in general follows. In chronological order these phases are:

a study/planning phase, which ends in a recommendation on which course of action the port should follow, giving only broad treatment of each technical aspect;
a design/engineering phase, which turns the chosen plan into detailed engineering designs;
a construction and implementation phase, including commissioning and start-up;
an evaluation/decision phase, after every of the previous phases, leading to a decision on how to continue in the next phase;
operation and maintenance of the reception

facilities.

In many cases it is possible that the port planning team will not have sufficient knowledge or manpower, to execute the above listed tasks. In this case it is advisable to hire outside specialists and to confine the task of the port planning team to project control, or even only general project supervision. When hiring outside assistance the following aspects are important.

(a) Past work and previous planning studies, even if shelved and not acted upon, should be made available to the new team. The same goes for all relevant data, which are needed for the study.

(b) The outside team should be contracted to spend a part of the study period at the port location.

(c) Consultancy contracts should name the individuals to be employed on the contract and care should be taken to check the capability of the individuals named.

(d) A liaison officer should be named by the authority to provide a single point of contact with the team, and this officer should be given a satisfactory level of authority in technical and administrative decisions.

(e) In the contract with consultants care should be taken that consultants will deliver a full set of as-built drawings, once the facility has been built.

IMO's Technical Co-operation Division (TCD) provides assistance to developing countries on many different areas within ship safety and prevention of pollution in the form of missions by consultants, fellowships, i.e. sending experts from administrations to developed countries for "on-the-job" training. The funds for such assistance are provided mainly from UNDP, but also from other donor countries.

In addition to assistance from TCD, the IMO Global Programme for the Protection of the Marine Environment provides funds from different donors, to assist appropriate projects.

6. The operation of reception facilities

As mentioned before the reception of the wastes has to be followed by treatment of the wastes. The manual deals with the equipment, which can be used for collection and storage of waste.

The first objective of a treatment technology is to separate water and oil or other substances. of course this is not relevant for Annex V. For this other techniques are necessary.

Depending on the required effluent quality, more treatment

steps might be required. Several treatment technologies are available, which can be categorized as follows:

- Primary treatment (Gravity separation)
- Secondary treatment (Physical/chemical separation)
- Tertiary treatment (Biological/chemical treatment)

As mentioned above, the required effluent quality determines which techniques have to be used. However, the first separation will usually be a gravity separation. If collection is carried out by floating facilities, barges are a good option, as they have limited draught requirements. These barges can either be motor barges, towed barges or other types. In any case, it is not advisable to use collection barges with oil/water separators on-board, as the time on the ship will not be long enough for efficient separation. Furthermore, barges usually do not have sufficient space for installation of a separation unit.

Collection can also be carried out by tank trucks, i.e. on-shore, or by disposal at a central collection facility. In all cases storage tanks with pumping facilities for the oily wastes will be needed, to which either the ships, collection barges or collection vehicles (depending on which system is used for collection) can discharge their (collected) waste. A variety of containers, bins, and dumpsters is used for collecting garbage. Receptacles need to be functional, not elaborate. Factors to consider when evaluating alternatives and selecting receptacles for Annex V wastes include the following.

The technical options discussed in the manual are (except biological treatment) treatment methods, that only separate the wastes in different fractions. Some of these fractions can be recycled. However, for the substances for which recycling is not a feasible option, and which cannot be handled by a biological treatment unit or by a chemical oxidation unit, the final disposal problem remains.

An essential part of a waste management strategy is the development of a waste disposal plan. A waste disposal plan gives a broad overview of the different types and quantities of the waste streams to be processed, and for every specific waste stream the processing/treatment path and the option for final disposal.

There are basically three options for final disposal:

- incineration
- landfarming
- controlled storage/landfill

Garbage received in a reception installation in a port, will in general be transported to the shore waste disposal, unless possibilities for recycling exist. In this way the reception

installation for Annex V serves as a link between the ships and land disposal systems. Annex V encompasses every commercial and recreational shipping and boating facility and therefore applies from the smallest dinghy to the largest tanker. Some wastes, such as quarantined or regulated garbage or cargo residues, may not be easily transportable to normal land disposal systems. This might require special provisions. In general however, the disposal of Annex V material is closely linked with the municipal disposal system and should be incorporated into this. This means that the garbage will be either dumped at a landfill for garbage or that it will be incinerated.

Incineration plants for garbage are economic for regional use, not for local use and usually require flue gas treatment, to prevent a high level of air pollution.
For landfill of garbage a number of provisions such as mineral and draining layers are required.

7. **Pinancinu and cost recovery**

The objective of a cost recovery mechanism is to generate revenues, which are used to cover the operating costs of port reception facilities. The operating costs include:

capital costs (interest and depreciation) of equipment, land acquisition;
labour, including operation of the facilities, supervision, administration and training of personnel;
maintenance and spare parts;
other consumables such as power and chemicals;
disposal costs for (secondary) wastes;
revenues of recyclable materials.

The provision of reception and treatment facilities requires initial investments, for which sufficient funds should be available. A distinction can be made between reception facilities and treatment facilities. Without preparing detailed costs estimates, it can be said that often the investments for treatment facilities will be higher than for reception facilities (although this has to be assessed case by case).Depending on the situation in each individual country, the investments for treatment facilities may be of such a magnitude that governmental participation and/or international assistance will be required.
Once the initial investments have been covered, a mechanism must be established to recover the operating costs for the reception and treatment of wastes. A number of cost recovery mechanisms are possible. Each system has it specific benefits and drawbacks, which will be discussed in subsequent sections.

When making a decision on cost recovery mechanisms, the following criteria may be considered:

1. will the cost recovery mechanism itself contribute to reduction of marine pollution or, in other words,

does it stimulate the delivery of wastes to a port;
2. does the mechanism stimulate waste-reducing measures on board;
3. does the mechanism interfere with inter-port competition;
4. is involvement of the government and authorities required concerning:
   4.A monitoring of compliance with regulations and enforcement
   4.B financial and administrative matters
   4.C operational matters (collecting and treating wastes)

Most of these criteria can be assessed in a qualitative manner only, Criterium no. 3, interference with inter-port competition, addresses the effect of the operational costs of the reception and treatment facilities on the ships' expenses in the port. While being a very sensitive issue, especially when an increase in port dues is considered, it is at the same time relatively easy to quantify. Once the basic design of a reception facility has been completed, reliable estimates of investments and operating costs can be made. These estimates can be used to calculate "unit prices", i.e. costs per m^3 or ton of waste treated, costs per ton of cargo, or costs per ship or ship category. This information will support the decision making process.

Cost recovery mechanisms can be found on a sliding scale with on the extremes:

the polluter-pays-principle;
costs shared by society.

Application of the polluter-pays-principle, which is generally accepted, implies that the waste generator has to pay for the waste he generates and wants to dispose of. Direct regulations are imposed on the generators and disposers of waste, which may restrict or prohibit certain disposal options or which specify the required treatment technology. The principle can be applied not only to ships, but also to land based generators of waste. Application of the polluter-pays principle implies extensive monitoring and control systems, because evasion of the law results in economic advantages to the polluter.

The shared-cost concept may apply general revenues or specific revenues to pay the costs of waste treatment and disposal. Also low interest loans or tax credits to waste generators and reception facilities can be used as an incentive to improve operations and stimulate waste minimization.

The cost recovery mechanisms discussed in subsequent sections are all based on these principles. The following alternatives will be addressed:

the fee system;
costs of disposal included in port dues;

a free of charge system.

Application of the fee system means that the ship (or consignor) directly has to pay for disposal of the wastes it generates. The fee system is based on a charge per lot or per ton of waste. Charges may be further differentiated for specific categories of wastes, depending on the treatment required.

If private companies offer services to collect and/or process wastes, these companies should also have a duty to receive the wastes delivered by ships, to avoid that only the most profitable wastes are accepted.

A fee system always provides some disincentive to ships, and it may induce illegal discharge. A positive aspect may be, that waste minimization practices on board are stimulated. A mechanism to control the fees for waste reception and processing may be necessary. For instance, in smaller ports lack of competition between entrepreneurs may result in monopolies and therefore in unacceptable prices for the services provided. On the other hand, prices must be such that waste reception and processing is a viable business.

Involvement of (governmental) authorities in the operational phase is mainly restricted to extensive monitoring and enforcement which is required for successful application of this cost recovery mechanism:

- to prevent ships from discharging their wastes in open sea (not delivering waste in a port saves expenses);
- to ensure that reception facilities and treatment plants comply with applicable environmental standards.

The effect of a fee system on inter-port competition will depend on the actual charges that are made and the efficiency of the services provided. If there is a legal requirement for ships to deliver all their wastes, the control of charges becomes more critical. However, more important than the actual charges may be the effect the reception facilities have on the turn-around time in the port.

Theoretically, this cost recovery mechanism should stimulate waste reducing measures on board. However, there is no practical evidence that supports this assumption.

Costs of disposal can also be included in port dues. A surcharge may be added to the existing port dues and tariffs, or alternatively an explicit new component of the tariff system may be introduced. The charges can be differentiated for particular ship categories, which can be based for example on ship type and engine power (when e.g. oily wastes are

concerned). For Annex V wastes, the number of crew may be used as a measure when bulk carriers or containers ships are concerned. For passenger ships the number of crew and passengers should be used. In case of general cargo ships, it should be taken into account that wastes may be cargo-related. The revenues of the surcharges are subsequently applied to operate waste reception and treatment facilities. The system assures a relatively stable income of the port to finance the reception facilities.

Drawback of this system is that waste minimization practices on board are not directly rewarded by reduced fees. This costs recovery mechanism can even result in more than average waste production on board, for example by neglected maintenance. The mechanism may also lead to import of wastes in an port that should have been disposed of elsewhere, because the ship has to pay the dues anyhow, regardless of the waste quantities.

As the charge is unavoidable, the costs of discharge will not be a disincentive for legal disposal and illegal discharges will be less likely to occur. As with any system, if the service is not adequate and discharge procedures long and troublesome, this will encourage illegal disposal. Ships visiting the port at short intervals may pay relatively more than other ships for the disposal of their wastes. In many cases, a remedy is to exempt a ship from paying for the rest of a year once it has called at the port a number of times. Enforcement and control will be required, but less extensive than for the fee system, provided that procedures for disposing waste will not result in undue delay. Depending on the organisational set-up, involvement in the actual operation of reception facilities also may occur.

Whether the mechanism interferes with inter-port competition, depends mainly on the fact if the surcharge would be a substantial increase of the port dues or not. Once an estimate of the annual operational costs of reception facilities is available, the impact on port dues can be assessed. As already stated in section 11.1, port dues are a sensitive issue, and until it has been demonstrated that the impact of waste disposal costs is not significant, ports may be reluctant to apply this cost recovery mechanism. Ports sometimes even refuse to accept specific types or quantities of wastes, to prevent that the port dues have to be increased.

Obviously, a free of charge system implies that ships are not charged directly for the disposal of wastes. However, operating facilities for waste collection, treatment and disposal results in operational costs, which have to be recovered one way or another.

A free-of-charge system in which ships do not have to pay for the services provided may sound attractive, but it implies that other resources must allocated. A free-of-cost system

does not exist.

When cargo residues are concerned, preferably the consignor of the oil and the consignee of the chemical cargo are made responsible for accepting dirty ballast and tank washings. This may require substantial monitoring by the authorities. Certain Annex I residues and tankwashings should also be received by the receiver of the cargo. This concerns asphalt, high density oils and other Annex I products, which through their physical properties prohibit that cargo tanks are cleaned at sea. For other ship generated waste, additional reception facilities have to be provided.

Indirect cost recovery can apply for example:

- governmental subsidies, using for example general tax revenues paid by society;
- revenues of specific taxes.

Waste delivery in a port is likely to be stimulated by this cost recovery mechanism and illegal discharges at sea will be reduced, mainly because there are no reasons for not delivering the waste. This cost recovery mechanism does not stimulate waste minimization practices on board. As for the other costs recovery mechanism, long and troublesome procedures to dispose of waste must be avoided, as the costs of additional lay-time in the port will stimulate illegal disposal of wastes.

Although it is true that image of a port benefits from free-of-charge reception facilities, there is as yet no indication that this factor influences the decision of ship operators to move to ports (provided that the port fits the trading pattern) providing such free or less costly reception facilities. With better enforcement of the discharge standards, this would probably be different.

There are indications that this cost recovery mechanism attracts waste. The amount of waste a ship wants to dispose of should be in proportion to the length of the last journey. If previous ports of call do not offer waste reception services, waste is likely to accumulate on board. As a result, a port offering services unconditionally may attract wastes that should have been dealt with in other ports. Such practices can be avoided by developing a regional strategy, leading to the provision of similar services in the ports in a region.

This cost recovery mechanism does not require extensive control and enforcement measures to verify compliance of ships with disposal regulations, provided that the services do not cause undue delay.

OPTIONS FOR ENFORCEMENT AND CONTROL

National legislation will have to be developed to regulate the processing of ship wastes which have been discharged and

MARPOL requirements have to be incorporated in the national legislation.
Whereas MARPOL only requires the reception of ships' wastes (and subsequently the enforcement and control of discharge to these facilities), it is the responsibility of the government to regulate the treatment of these wastes. This is usually done by national legislation and therefore enforcement and control of these regulations should be part of the national (or local) legal framework.

The enforcement and control of the use of reception facilities will be successful only if the states which have ratified MARPOL make a joint effort to do so. This should affect both ports and ships, as the availability of adequate facilities in ports will give a captain less reason to dispose of his waste at sea.

There are various reasons for ships to use discharge methods which do not comply with the regulations.
The most important ones are:

- Lack of appropriate port reception facilities;
- High prices charged by some of these facilities;
- Undue delay at reception facilities;
- Malfunction of alarm systems or oil/water separators on board;
- Rotting and smell problems caused by the long time on board storage of garbage;
- Lack of information.

As national (or local) legislation on port reception facilities will apply to both reception and treatment, enforcement and control actions can be categorised as follows:

- Ships' compliance with the regulations on discharge and disposal;
- Reception facilities' and treatment facilities' compliance with national and local regulations on waste treatment and effluent quality.

Ships from states which have ratified the MARPOL convention are obliged through their national legislation to comply with the MARPOL regulations. On the other hand ships are not always obliged to dispose used oil, sludge, chemicals or garbage in any specific port, with the exception of prewashes. Which port is used for waste disposal is always up to the captain or the ship-owner.
Because of this, it is possible that a ship will leave the port with slop tanks which are too full to reach the next port without discharge en route, while the port authorities have no means to prevent this.
Some indirect measures are possible for preventing this, by addressing the personal responsibility of the captain. Ships leaving a port with slop tanks which are too full in relation

to the trip to be undertaken, should be requested to empty the deposits at the reception facility before leaving. If the captain is not willing to cooperate the destination port is informed. Port authorities might then put pressure on such a ship by indirect measures, before it leaves the port, for instance by a stricter general control.

Upon arrival at the destination port a second inspection will take place. The juridical action that can be taken depends on the local possibility for reverse burden of proof. This means that if the ship cannot prove to have disposed of its wastes at a reception facility, it will be taken guilty of non compliance with the MARPOL treaty.

It is important to note that the MARPOL 73/78 convention does not state any requirements for the treatment of the wastes received in a reception installation, but only for the discharge (and thus reception). The treatment of wastes received in a port reception installation is the responsibility of the national government. The construction and operation of a treatment facility for ships' wastes therefore has to comply with national legislation and local regulations. Especially important in this respect are the local standards for effluent concentrations.

Important for the international effect of the prevention of pollution from ships is that national environmental acts should not allow the disposed waste to be discharged to the sea again. Strict maximum discharge concentrations for the treatment facilities are essential. In any case these discharge standards should be at least as strict as the discharge standards which MARPOL 73/78 requires for ships. The same applies for other further treatment methods on shore as landfill or incineration.

The national legislation developed for the implementation of MARPOL 73/78 may not be appropriate for the control of discharges from land-based sources of marine pollution such as reception and treatment facilities. The manual provides direction on legislative and regulatory development for both MARPOL 73/78 ratification and reception facility operation. Legislation alone will not ensure that pollution is reduced or prevented; enforcement of the legislation is essential to compliance.

The level of effort put towards achieving compliance with regulations for reception and treatment facilities should be equivalent to the number of facilities operating and the volume of waste received and processed by the facilities. The use of a manifest system for tracking of wastes received, transported and treated if utilised, should provide the necessary information on which to base a compliance and enforcement program. In addition, licences issued to reception, transportation, storage and treatment companies should include conditions for reporting, on a regular basis,

the type and volume of wastes received. This type of information is necessary for determining the effort expended on enforcement.
A single small reception facility receiving only Annex V wastes will not require the same enforcement effort as a number of reception facilities operating in several ports and receiving all types of wastes and transporting the wastes to several treatment plants.

The legislation should include the power for the inspector to enter and inspect all aspects of the facility without prior notice. However, to protect the operators of the facility, the legislation should also include the requirements for search warrants to collect and seize evidence. The regulatory agency should prepare yearly inspection schedules which identify the frequency of inspection but not necessarily the dates for inspection during the upcoming year.

Probably the most important aspect of any compliance and enforcement program is a clear policy statement on how the legislation will be enforced. Many countries have such policies and they are available on request. The policy should describe how to handle minor offenses. If all offenses are taken to the judicial system, it will require a significant effort and time will be wasted. The primary purpose of enforcement is to achieve compliance and this objective may be best achieved when the judicial system is reserved for major violations or repeated offenses.

Consideration should be given to a system of warnings prior to taking court action for offenses of a minor nature. The environmental consequences of the offence should dictate the action taken. For example, delay of a day or two in reporting according to the conditions of a permit may be a minor offence and the regulatory authority could issue a verbal or written warning to the offender. However, discharge of untreated effluent from a treatment plant may result in significant environmental harm and a decision to take judicial action immediately would be justified.

Ticketing provisions, similar to parking tickets, could also be considered in the legislation and thus the inspector could issue a ticket for minor violations.

Each country should select an approach to enforcement and compliance that suits the country's needs and is consistent with national legislation. The approaches suggested here include warnings and a system of fines to encourage illegal activities. The fines should be large enough to be a deterrent but allow flexibility where accidents even though no fault of the owner or operator of the facility.

HELCOM SEMINAR

For Experts from Estonia, Latvia, Lithuania and Russia
on the implementation of HELCOM arrangements,
other international instruments and related matters.

Riga, Latvia

30 August - 3 September 1993.

MARITIME COMMITTEE

National experience in the implementation of HELCOM Recommendations in the field of MC

John Østergaard
Inspector, Danish EPA
Vice-Chairman of MC

INTRODUCTION

The Baltic Sea Area covers almost 370,000 square kilometers which is a mere 0.1 % of the world's oceans but nevertheless it is unique in many ways. The brackish water makes the flora and fauna most interesting and in many ways the Baltic behaves more like a lake than like an ocean.

Nine states have coastlines on the Baltic Sea. Each state is a highly developed industrial country and for all of them the sea is vital.

More than 70 millions people live in the states facing the Baltic Sea and it is estimated that more than 15 % of the world's total industrial production originate in this area.

The Baltic Sea is a transportation route and a source of nourishment. Investigations have found that more than 100 million tons of oil are carried annually on the Baltic sea lanes and the fishing catch is about 1 million tonnes every year.

As the only natural enterance to the Baltic Sea is via the Danish Straits all water exchange between the brackish Baltic Sea and the salty North Sea must go through these straits. The same situation goes for the sea transportation of all kind of goods, e.g. almost all oil to and from the Baltic Sea Area has to pass through the Danish Straits.

On this background the development and implementation of the Convention on Protection of the Marine Environment in the Baltic Sea Area has been given a very high priority by the Government of Denmark.

In the following I will give you some examples on how some of the HELCOM Recommendations in the maritime field have been implemented in Denmark.

RECEPTION FACILITIES IN PORTS

Article 7.2. of the present Convention states the following requirements:

> "2. The Contracting Parties shall develop and apply uniform requirements for the capacity and location of facilities for the reception of residues of oil, harmful substances other than oil, including sewage and garbage, taking into account inter alia the special needs of passenger ships and combination carriers".

HELCOM Recommendation 1/1 adopted 5 May 1980 as the first recommendation adopted by the Commission deals with this issue. In the operative paragraph of the recommendation the following is stated:

> "RECOMMENDS Governments of the Contracting Parties to the Helsinki Convention to take appropriate steps to ensure that reception facilities for oily residues and other wastes from ships are used to the fullest extent; taking into account that the cost and the time factors are essential in connection with the use of reception facilities for wastes from ships and that any measures which could provide disincentives to such use should be avoided."

The obligations of Article 7 and Recommendation 1/1 are implemented in Danish legislation by Act No. 130 of 9 April 1980 on the Protection of the Marine Environment. According to Section 26 of this Act the Minister for the Environment may lay down detailed rules and direct upon the provision and functioning facilities in the ports for the reception of residues containing oil and noxious liquid substances, as well as sewage and garbage. Thus bunker undertakings, undertaking shipping or reception of oil, undertaking shipping or reception of noxious liquid substances, and ship repair yards shall establish facilities for the reception of ballast and tank washing water containing oil or chemicals, and all ports shall establish reception facilities for the sewage and garbage.

The detailed rules are given in two Statutory Orders, No. 429 of 7 September 1983, and No. 167 of 1 April 1987. According to these Orders reception facilities for the reception of residues of oil, noxious liquid substances, sewage and garbage from ships and platforms shall be established in all Danish traffic ports, oil and chemical terminals and ship repair yards. The Statutory Orders do not, however, require fixed installations.

In addition to the Statutory Orders The ministry of the Environment developed a set of guidelines on the establishing of reception facilities. These guidelines were based on the IMO Guidelines on the provision of adequate reception facilities in ports and were submitted to the ports and the local authorities responsible for the compliance of the Act and Orders.

In the guidelines the ports and local authorities were recommended to examine the needs for reception facilities during one year trial period before initiating huge construction work in building of fixed reception facilities. In the trial period adequate reception facilities could be provided by means of vacuum trucks or other mobile equipment called for on purpose.

The result of these examinations were that due to the size of most Danish ports only few ports deceided to establish fixed reception facilities. In the majority of the Danish ports the reception facilities are based on an agreement between the Port Authorities and the technical department of the local council or a contract with a local company using one or more vacuum trucks. In case of fixed reception facilities the necessary standard connections and hoses will be provided by the reception facility. On a mobile system normally the Port Authority is in charge of the necessary equipment.

In many ports the residues can be sucked directly from the ship's holding tanks. However, as a general rule the ships must provide the necessary pumping capacity themselves.

The capacity of each reception facility is based on the normal traffic in the port, taking into account the general size of ships and their normal trade pattern.

In cases where a ship has an extraordinarily large amount of residues to deliver, additional vacuum trucks can be called in within few hours.

Attachment 1 and **2** illustrate exsamples on fixed and mobile systems for the collection of oily wastes and garbage used in many Danish ports.

Fee for the use of reception facilities.

The no-special-fee system applies to reception facilities in all Danish ports, under the following conditions:

- the delivery of residues shall normally take place within the normal working hours of the port. If however, the ship is calling only outside normal working hours the delivery shall be free of charge to the ship;
- the amount of residues to be delivered should be in reasonable proportions to the size and type of the ship, and the duration of the voyage;
- the ship should be equipped with standard connections on deck and must be able to deliver the necessary pumping capacity;
- the ship must pay harbour fees.

If the above mentioned conditions are not met the ship must expect to be charged the extra expenditures laid on by the port administration.

The philosophy behind the no-special-fee was to gain maximum benefit from the HELCOM and MARPOL 73/78 Conventions and the Danish Government was convinced that more ships would use the reception facilities if they appear to the vessel operator as a free service included in the general port fees.

If the port fee is broken down the service of reception facilities are charged to the vessel on a Gross Registered Tonnage (GRT) basis through a port charge similar to "Light Dues" charges or "Ice Breaker" charges imposed in all Danish ports and aimed at recovering the costs for navigating aid, charting and ice breaker assistance in winter time.
By financing the reception facilities through the port fees all ships calling at the port take part in the financing whether they use the reception facilities or not.

Reporting of alleged inadequacy of reception facilities

The MARPOL 73/78 as well as HELCOM contain strong obligations for the Coastal or Port States to provide adequate reception facilities to meet the needs of the ships calling at their ports. If a port or a Port State do not comply with these requirements they enforce the master of a ship to violate the discharge requirements of MARPOL 73/78, HELCOM and probably several national requirements also.
In such situations the master of a ship must have a possibility to inform and report on such injustice forced on him.
By MEPC Circular 60 a format for reporting alleged inadequacy of reception facilities for oily wastes was developed. By HELCOM Recommendation 3/4 this format was adopted by the Baltic Sea States. Due to international developments and the entering into force of more annexes to the MARPOL 73/78 this Recommendation has been superseded several times by HELCOM Recommendations 6/11, 7/9 and latest by 10/6 from 1989.
In Denmark these Recommendations have been implemented by letters from the Danish EPA to the different Shipowners Assosiations with a request to distribute the "new" reporting formats to shipowners and ships under the assosiations.

The filled in formats shall be returned to the Danish EPA who will report to IMO and HELCOM as appropriate.

COOPERATION IN THE PREVENTION OF POLLUTION FROM SHIPS

The original tekst of Regulation 1 of Annex IV of the Convention stated that the Contracting Parties should cooperate and assist each other in initiating action by International Maritime Organization in order to develop:

- international rules for navigation of deep draught ships in narrow and shallow waters in the international waters of the Baltic Sea Area and in the entrances to the Baltic Sea for the prevention of collisions, groundings and strandings.

A result of this cooperation was the adoption of IMO Assembly Resolutions A.339 (IX) on navigation through the entrances to the Baltic Sea and Resolution A.427(XI) on the use of pilot services in the Sound Area. This resolution was later superseded by Resolution A.579 (14) on proposal and strongly supported by all the Baltic Sea States.

Regulation 2 of Annex IV requires that the Contracting Parties shall assist each other in investigating violation of the existing legislation on anti-pollution measures which have occured or are suspected to have occured within the Baltic Sea Area.

Recommendation 6/13 concerning cooperation in investigating violations or suspected violations of discharge and related regulations for ships and dumping regulations deals with the same issues.

Even if this recommendation has been overtaken by international recommendations issued by IMO and supplemented by HELCOM Recommendation 10/8, this recommendation was for many years the backbone for close cooperation between all the Baltic Sea States and from a Danish point of wiev between Sweden and Denmark and Germany, and Denmark in particular.

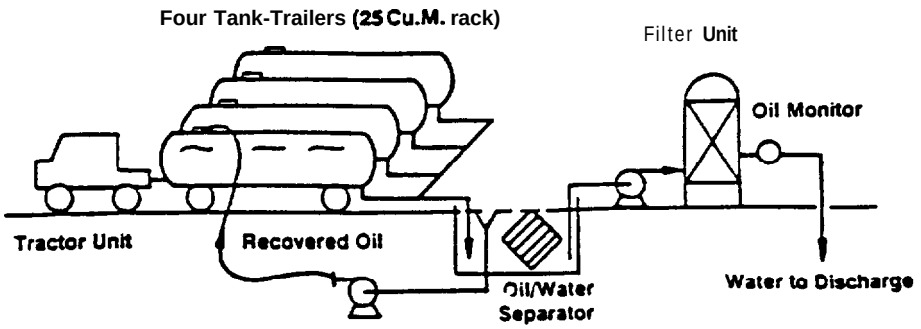
In practice the Recommendation was used to inform the Responsible Authorities in the countries on observed violations of the Convention or the National Laws. Also, the Recommendation was used to trace ships who was suspected of violation or who had been observed violating the discharge requirements. If a suspected vessel was identified the Maritime Authorities of the Port State was requested to carry out an intensive Port State Control and if necessary to collect evidence, such as oil samples, and copies of relevant documentation from the ship.

From a Danish point of wiev this cooperation has been very fruitful and the shipping industry have become fully aware of this multilateral cooperation.

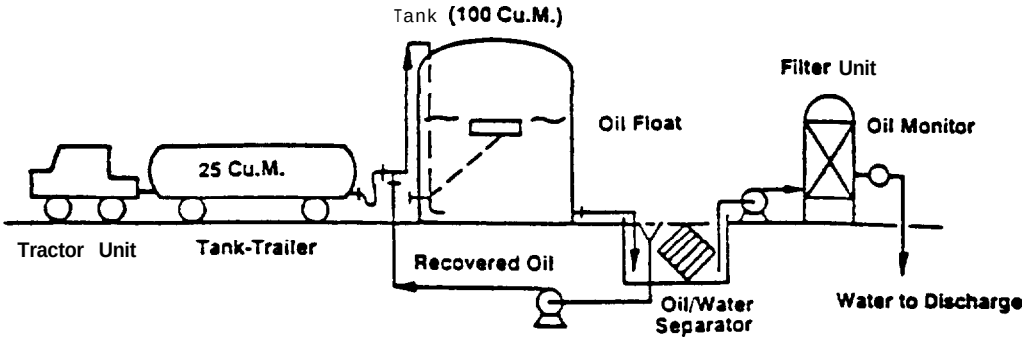
Finally, many of the HELCOM Recommendations developed by MC are highly technical and are aimed at the manufactorers of.different shipboard equipment for the minimization of operational pollution.
In Denmark the National Shipping Administration is responsible for the implementation of such recommendations. Normally the text of the recommendations are distributed to the relevant manufactorers with a request to apply the requirements of the recommendation.

Thank you.

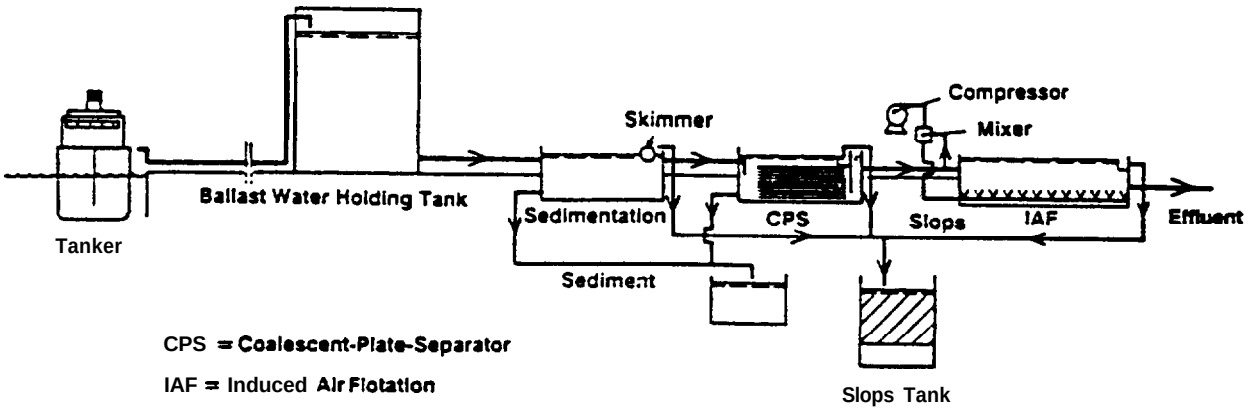
System 1: Portable Storage Tanks

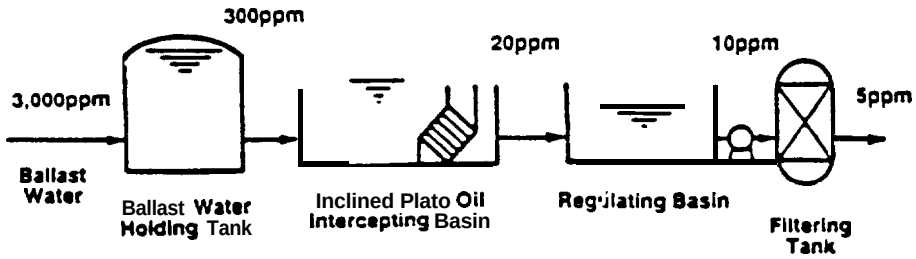


System 2: Fixed Storage Tanks



Ballast Water Reception System

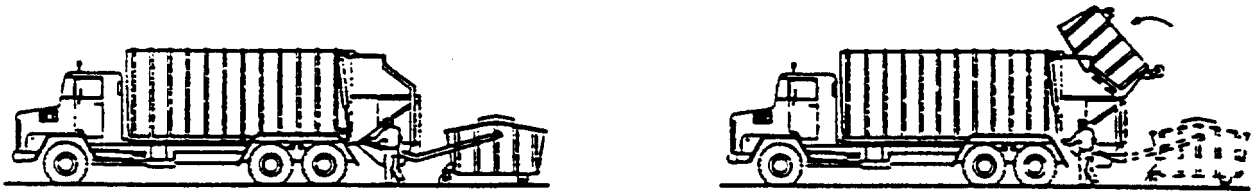




Flow Path Showing Reducing Pollution Levels

GARBAGE-TRUCK WITH LOADING SYSTEM

COLLECTION-VEHICLE EMPTYING $1M^3$ CONTAINER



COLLECTION-VEHICLE EMPTYING $5M^3$ CONTAINER

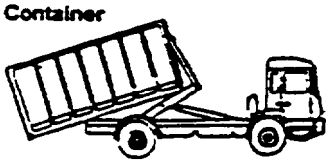
COLLECTION-VEHICLE SCOOPING AND COMPACTING

Portable Containers Placed on Berths

(Dumpsters/Skips)

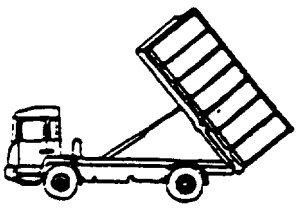
Use Containers with Hinged Lids because of vermin, wind and rainfall

Hooking Container



Lifting Container

Transporting Container



Discharging Container

HELCOM SEMINAR
for Experts from Estonia, Latvia, Lithuania and Russia
on the implementation of HELCOM arrangements,
other international instruments and related matters

Riga, Latvia

30 August - 3 September 1993

Main lectures in the field of the Technological Committee (TC)

HELCOM SEMINAR FOR EXPERTS FROM ESTONIA, LATVIA, LITHUANIA AND RUSSIA ON THE IMPLEMENTATION OF HELCOM ARRANGEMENTS, OTHER INTERNATIONAL INSTRUMENTS AND RELATED MATTERS

Riga, Latvia 30 August - 3 September 1993

Introduction to the work of TC and its subsidiary bodies, Technological Committee in general

Dr. Tapani Kohonen
Chairman of the Technological Committee
Counsellor for International Affairs
Ministry of the Environment, Finland

History

As has been stated in the Helsinki Convention 1974 in Article 3 "Fundamental principles and obligations" the Contracting Parties shall individually or jointly take all appropriate ... measures in order to prevent and abate pollution and to protect and enhance the marine environment of the Baltic Sea. Therefore the early activities of the Commission included monitoring of the state of the Convention Area. This procedure was in line with the principle of the 80's "to recognize first the problem and then try to find a solution". The subsidiary bodies, first the Scientific-Technological Working Group (STWG) and then the Scientific-Technological Committee (STC) considered both the sources of land-based pollution and effects on the state of the Baltic Sea.

Due to the increased activity in the scientific sector for monitoring and assessment activities and on the other hand in the preparations of recommendations on the reduction of pollution and of evaluation of the pollution loads, the Commission decided during its 1 lth meeting in 1990 to divide the Scientific-Technological Committee into the Environment and Technological Committees.

At the beginning under the Technological Committee two permanent subsidiary bodies have been set up; the Working Groups on Reduction of Discharges and Emissions from Point Sources (TC POINT), and on Reduction of Inputs from Diffuse Sources (TC DIFF). The Commission established during its meeting in February 1993 an ad hoc Expert Group on Pollution Load to the Baltic Sea (TC POLO).

Tasks of TC

The most important tasks of the Technological Committee are focused into the advising role especially in respect of recommended measures relating to reduction of hazardous substances mainly from land-based sources and of elaboration of pollution load assessments or compilations as we use to say. The detailed text concerning the terms of reference for the Technological Committee is attached.

Working methods and approaches

The first measures to reduce discharges of hazardous substances i.e. the HELCOM recommendations on elimination and limitation of DDT and PCB adopted by the 3rd meeting of the Commission in 1982, are good examples on the substance-wise approach. This approach was mainly used during 1980's with the Lead Countries for every single substance (cadmium, mercury, lead, organotins, oil) recognized to be harmful, dangerous or hazardous to the marine ecosystem. The Lead Countries drew up regularly progress report on national activities in implementation of those recommendations .

In addition to the before-mentioned substance-wise approach in reduction of pollution, the branch-wise approach has been used more and more in early 1990's. The Lead Countries for special sectors of point and non-point pollution have used two kind of procedures in the preparation of draft the recommendations. National information concerning the number of plants,

type of processes, discharges of different substances etc. has been collected by the questionnaires. A draft recommendation is prepared containing average target figures which offers easier acceptance of the Contracting Parties. On the other hand the Lead Country or a country with good experience in the branch concerned can prepare a draft recommendation based on the existing information and nowadays on best available technology. This procedure saves time but may easier create problems with rapid adoption and with implementation.

The basic criteria for a draft recommendation is that every Contracting Party can adopt it and, what is most important, can implement it within the settled timeschedule. In the 1980's the target figures were quite easily reached by the Federal Republic of Germany, Denmark, Sweden and Finland. At the same time other Contracting Parties had difficulties with the implementation. In the 1990's the target values and deadlines for implementation demands special national measures for every Contracting Party.

When adopting HELCOM recommendations the Contracting Parties primarily want to reduce the pollution load but sometimes recommendations are also supporting and activating national environmental protection policy.

The main idea of the recommendations has been to set the same target figures and timeschedule for each Contracting Party. Due to the changes in Central and Eastern Europe during the last 3-4 years with the new countries in transition becoming Contracting Parties of the Helsinki Convention, the 3rd meeting of the Technological Committee in 1992 was ready first time to propose to the Commission for adoption a recommendation with three years longer time of implementation for countries in transition (Draft HELCOM Recommendation concerning restriction of discharges from the production of wood-containing and woodfree paper and paperboard). The obstacle to final adoption were the different opinion as to the area of implementation.

The Commission has decided that the recommendations should be implemented in the whole catchment area. The same common opinion of the Contracting Parties has been taken into the Article 6 of the Convention 1992 "Principles and obligations concerning pollution from land-based sources" by wording "The relevant measures ... shall be taken by each Contracting Party in the catchment area of the Baltic Sea without prejudice to its sovereignty".

The preparations of the First and Second Baltic Sea Pollution Load Compilations showed very clearly difficulties still existing in harmonizing sampling, analysing and calculation methods among the Contracting Parties. Reliable pollution data is essential not only for controlling the effects of the implementation of the recommendations but also for controlling the implementation of the Baltic Sea Joint Comprehensive Environmental Action Programme.

Reporting

In the 1980's the reporting on national implementation of recommendations was decided by the Commission case by case. Due to the big confusion in reporting requirements, the Commission decided to start reporting by three year intervals and also made a decision on the time for first report. The Lead Countries collect the national reports in accepted formats. The Lead Countries collect the reports and the Technological Committee will consider the reports before the submission to the meeting of the Commission.

Implementation of the recommendations is not the only duty in the field of TC to be reported by the Contracting Parties. Also the implementations of the ministerial Declarations in 1988 and 1992 contain obligations for the Contracting Parties. The timeschedule of reporting is the same as for recommendations. This means that all reports must be submitted for consideration to the every third meeting of the Commission.

TERMS OF REFERENCE FOR THE TECHNOLOGICAL COMMITTEE (TC)

A. The duties of the Technological Committee (TC) of the Baltic Marine Environment Protection Commission are:

a) to advise the Commission in discharging its duties under Article 13 of the Helsinki Convention, especially in respect of matters related to Articles 5, 6, 9, 10 and 16 of the Convention, and in particular:

(i) to collect and review technological data and knowledge pertinent to the goals of the Convention and to promote the exchange of information;

(ii) to elaborate and periodically review cooperative control programmes concerning collection of data on discharges to the Baltic Sea, and to elaborate methods, models and techniques, taking into account the need for intercalibration and standardization;

(iii) to assess the pollution load to the Baltic Sea from direct and indirect sources;

(iv) to elaborate criteria and standards for the abatement of land-based pollution to the Baltic Sea, and to elaborate proposals for the Commission as appropriate, taking into account the state of the marine environment.

b) to invite, when deemed necessary, other Committees of the Commission to consider specific matters related to their mandates;

c) to reauest its subsidiary bodies, when deemed necessary, to invite relevant subsidiary bodies of other Committees to consider specific matters related to their mandates;

d) to advise on any other matter remitted to it by the Commission;

e) to report to the Commission on its activities and to submit its report to other Committees of the Commission for information and, as appropriate, for comments,

B. TC may, subject to approval by the Commission, establish sub-groups and temporary groups for consideration of matters related to its mandate;

C. TC may cooperate, when authorized by the Commission, with competent international bodies in the field of science and technology related to its mandate;

D. The Technological Secretary of the Commission shall ex officio serve as the Secretary of TC.

Bernd Mehlhorn
Chairman TC POINT

Riga, 2nd September 1993/Dä.

TC POINT

Working Group on Reduction of Discharges and Emissions from Point Sources

Summary:

The legal basis of the work of TC POINT regarding the Convention text of 1992 (especially Article 6), Annex II (Best Environmental Practice ≙BEP and Best Available Technology ≙BAT) and Annex III (Criteria and measures concerning the prevention of pollution from land-based sources) is shown.

The duties of TC POINT which are laid down in the Terms of Reference and which include, inter alia, the identification of land-based discharges from point sources, the identification of BEP. and BAT and the restriction of discharges are discussed.

Important objectives of the Work Programme, inter alia, the ranking of priorities and the implementation of BEP and BAT are mentioned.

Finally the existing HELCOM Recommendations concerning TC POINT are listed and those which are under discussion are introduced. With HELCOM Recommendation 14/3 ("glass industry") as example the common structure of HELCOM Recommendations concerning TC POINT is explained.

Swedish Environmental Protection Agency
Margareta Stackerud
Principal Technical Officer

Working Group on Reduction of Inputs from Diffuse Sources (TC Diff)

Task

The establishment of TC Diff reflects the importance of the impact on the environment from diffuse sources. The first meeting with this Group was held in Estonia in 1991. In the Terms of Reference, the work of the Group has been identified and the Group should report to the Technical Committee.

The Group should base its work on a step-wise approach including selection of sectors and products, identification of harmful substances and other pollutants of concern. This information would than form the basis for recommendations .

The work includes very different sources of emissions from very complex and large sources within the agriculture area to very limited product groups as electric equipments and batteries.

Another important task for the Group is to promote the use of best available technology and best environmental practice related to emissions from diffuse sources. Specific problem-oriented recommendations should, whenever possible, include recommendations and practical examples of BAT and BEP.

Moreover, questions about priority setting of chemicals for further deliberations as well as certain work within the pesticide area are also part of the work of this Group.

Working methods

The work of TC Diff could be initiated either by

- demands or requests of Ministerial meetings, the Helcom Commission or the Technical Committee,
- observed effects in the environment
- priorities forwarded by different Contracting Parties

The work can also be initiated by the knowledge about on-going work in other international fora such as, Parcom Diffchem, OECD, EEC, and ECE. It might be very cost-effective to utilize results already achieved and relevant to the Helcom work.

Priorities

The working strategy for reduction of pollution from diffuse sources has to be very pragmatic, progressing from sectors, products and substances. Sectors and products should be chosen due to high concern of diffuse inputs into the environment and substances should be chosen due to their high environmental concern.

As far as substances are concerned, the Group should continue to work with selection of priority substances. The *" Baltic Sea List of Priority Harmful Substances other than nutrients for immediate action in order to reach the 50 % reduction goal by 1995" was* adopted by Helcom 12. This decision could be seen as a first step and further substances considered as candidates for further actions ought to be identified. This work was initially carried out through the " Working Group on Harmful Substances ". The main task of the Group should be to set priorities for further work using 'the Helcom Working List of Chemicals' as the basis for its deliberations. The working list includes industrial chemicals as well as active ingredients in pesticides. As that work required specific expertness, it has later on been decided that it should be performed within TC Chem (former Working Group on Harmful Substances) with a new status within TC Diff. Sweden acts as lead country and experts from the other Contracting Parties have been elected.

The present priorities related to sources and products within TC Diff are

- agriculture
- forestry
- traffic
- stove/fireplaces
- mercury- and cadmium containing products

Current work programme

The activities within Helcom PITF require some inputs from our Group. In *the implementation of the Baltic Sea Environmental Action Programme, an* outline for the first phase has been presented. In this context, the key activities for non point sources are development and implementation of policies concerning agriculture, fertilizers and pesticides. TC Diff is of the opinion that diffuse emissions of chemicals ought to be considered in future work.

The *nitrogen load* on the Baltic is of great concern and TC Diff is involved in different activities.

Helcom 14 expressed concern with the substantial airborne inputs to the Baltic Sea of nitrogen and TC Diff was asked to develop sector-wise reduction targets for atmospheric emission. It is the opinion of TC Diff that the questions have to be further clarified before specific proposals will be made. Reference was also made to the overall reduction target of 50 %, which has been defined by Ministerial Meetings.

Another related question has been initiated by the Coalition Clean Baltic (CCB) where TC Diff has been asked to investigate the riverine load of nitrogen emanating from atmospheric deposition.
Within the Group, this task relates primarily to agriculture and traffic - two priority sources. The Group made reference to what has already been achieved and future contributions have to be further discussed.

With reference to the priority sources, *agriculture* seems at the moment be a first priority. A number of recommendations have already been adopted and it is now the task of the Contracting Parties to implement those recommendations. These could briefly be described as follows.

- *Reduction of nitrogen, mainly nitrate, leaching from agriculture land.* The recommendation gives concrete advise on how to apply artificial fertilizer and animal manure, as well as advise for calculation of the need to apply fertilizer.
- *Reduction of phosphorus leaching and erosion.* The same principles apply for this recommendation
- *Reduction of farm waste discharges* recommends establishment of storage systems etc
- a few other recommendations supporting the need to reduce nitrogen such as recommendation *on retention of nutrient in freshwater systems* and *reduction of ammonia volatilization from animal housing.*

With all these recommendations, the most urgent need within the agriculture area seems to be covered. The work should in the future be concentrated on the implementation and the experiences from that implementation.

Another area within agriculture is the use of *pesticide.* Many pesticides, that have been used in the past, are very toxic and/or persistent. Some of the worst ones have already been prohibited for use by Contracting Parties and they have been identified in Annex 1 of the new Convention. A recommendation for approval of pesticides for use in the Baltic Sea area has been adopted by Helcom. The main message in that recommendation is that pestides should not be used unless they have been approved by an authority and that a register of approved pesticides should be published annually. Basic criteria for approval will be elaborated taking into account internationally agreed criteria.

TC Diff has agreed to develop a proposal for BEP with the aim of diminish unnecessary pollution when pesticides are used. A first draft should be presented at the end of this year.
A widespread use of fertilizers is also of concern due to the contamination of cadmium. This is a problem which is dealt with also in other international fora such as OECD, and a proposal for restriction will be discussed at the next TC Diff.

Even though some results already have been achieved in the agriculture sector, TC Diff has decided that agriculture matters should be kept on the agenda and the following will be considered in the future

- nutrient balance, including fertilization rates
- Best Environmental Practice (BEP) in relation to Good Agricultural Practice (GAP) and the definition of " Ecological Agriculture "
- impact of agricultural practice on biodiversity
- agricultural use of sewage sludge.

Forestry is a sector where we now should draw advantage from the agriculture recommendations in order to consider the relevance for that area. This is an item which will need more attention in the future.

Traffic is an important source for diffuse emissions and perhaps one of the more difficult one to handle. The reason for this is the economical impact and the political consequences of strict recommendations. However, the Group decided that the scope of future recommendations should cover in addition to NO,, PAH and hydrocarbons, also CO, and CO emissions.

Stove/ fireplaces present an increased part of individual heating units and this fact might raise the problem of air emissions of toxic and carcinogenic substances from uncontrolled household combustion.

Mercury- and cadmium-containing products. There are different activities going on aiming at reduction of heavy metals. These include thermometers, electric equipments and batteries. A new recommendation for batteries has recently been adopted that relates to mercury, cadmium and lead. The main message in the recommendation is that collection systems should be implemented and that substitutes should be encouraged to the extent possible.

Matters related to harmful substances (TC Chem)

The aim of this sub Group is to identify new candidates for consideration for further actions. The Helcom Waiting List of Chemicals should be the basis for this work, The selection would probably be based on inherent properties as well as potential for exposure. What we are looking for are chemicals that might have a negative impact on the Baltic. Properties to take into account are high aquatic toxicity, persistence, potential for bioaccumulation etc. Moreover chemicals used in high volume as well as with routes of application that imply potential for high environmental exposure should also be considered.

THEAIMOFTHEPOLLUTIONLOAD COMPILATIONS

- ESTIMATION OF THE PRIORITY OF DIFFERENT **SOURCESANDPOLLUTANTS**

- ESTIMATION OF THE EFFICIENCY OF MEASURES TAKEN FOR REDUCING THE POLLUTION LOAD

- ESTIMATION OF ANTHROPOGENIC IMPACT ON **THEAQUEOUSECOSYSTEMS**

- COLLECTION OF INFORMATION FOR **MATHEMATICALMODELS**

-DETERMINATIONOFLONGTERMLOAD CHANGES

- HELPING THE DECISION MAKERS TO FIND OUT **THEMAINPOLLUTANTSANDTOALLOCATE INVESTMENTSCOST-EFFECTIVELY**

EXISTING REPORTS CONCERNING POLLUTION LOAD INTO THE BALTIC SEA

1. THE GULF OF FINLAND - DISCHARGES FROM LAND AND AIR. FINNISH-SOVIET WORKING GROUP ON THE PROTECTION OF THE GULF OF FINLAND. DRAFT REPORT. APRIL 1981, 12 PP.

2. THE GULF OF BOTHNIA - DISCHARGES FROM LAND AND AIR. NATIONAL ENVIRONMENT PROTECTION BOARD, SWEDEN, NATIONAL BOARD OF WATERS, FINLAND, JUNE 1981, 21 PP.

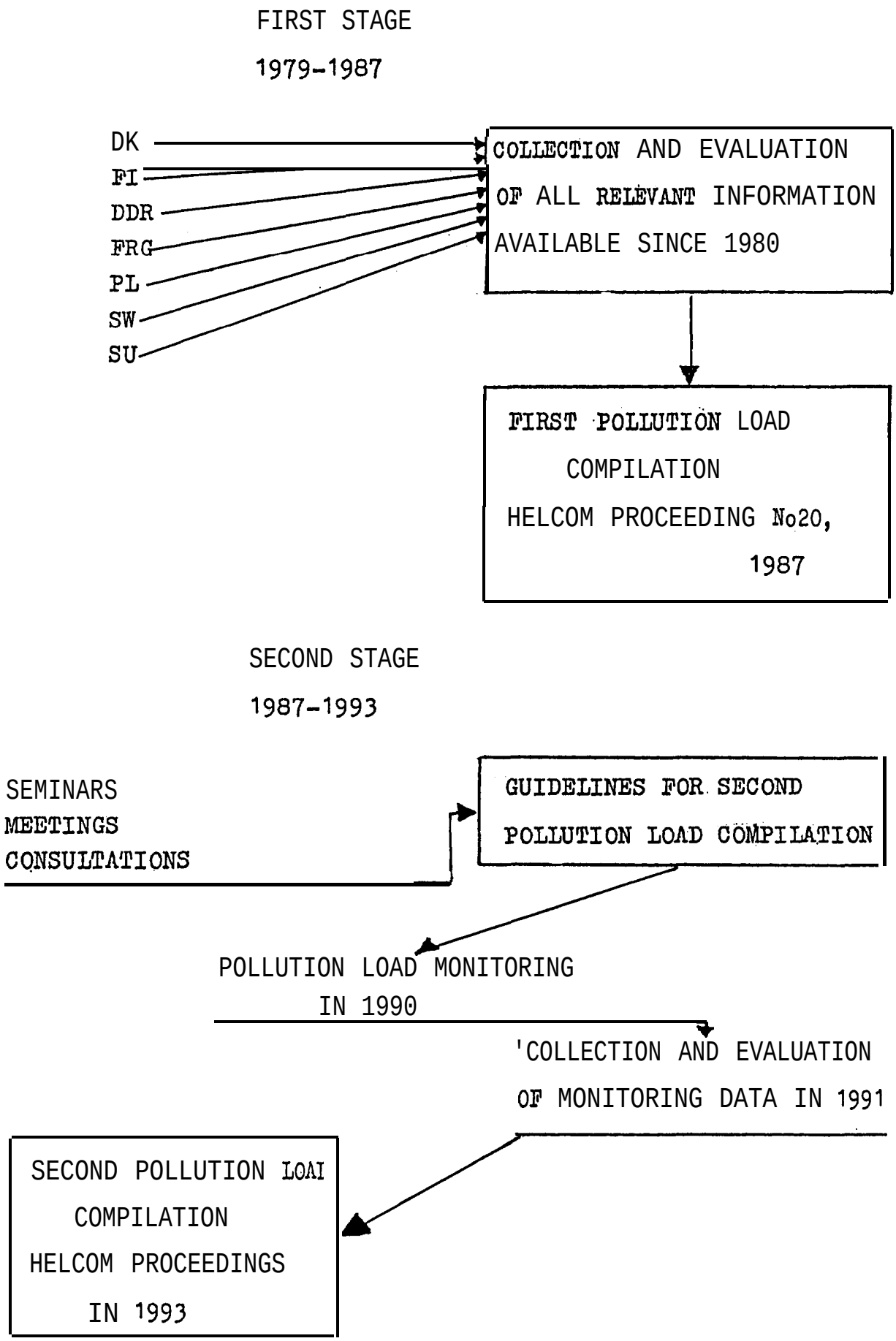
3. THE GULF OF BOTHNIA - DISCHARGES FROM LAND AND AIR. NATIONAL ENVIRONMENT PROTECTION BOARD, SWEDEN, BOARD OF WATERS, FINLAND, SEPTEMBER 1983, 31 PP.

4. THE GULF OF FINLAND - DICHARGES FROM LAND AND AIR. FINNISH-SOVIET WORKING GROUP ON THE PROTECTION OF THE GULF OF FINLAND, REPORT No 3, NOVEMBER 1984, 15 PP.

5. BALTIC SEA ENVIRONMENT PROCEEDINGS No 20. FIRST POLLUTION LOAD COMPILATION, JANUARY 198, 56 PP.

6. BALTIC SEA ENVIRONMENT PROCEEDINGS No 45. SECOND POLLUTION LOAD COMPILATION PLC-2, HELSINKI COMMISSION, MARCH 1993,156 PP.

HISTORY OF THE HELCOM POLLUTION LOAD COMPILATIONS



CLASSIFICATION OF THE INPUTS TO THE BALTIC SEA

1. RIVERINE INPUTS INTO THE BALTIC SEA

* MONITORED RIVERS
* PARTLY MONITORED RIVERS
*NON-MONITOREDRIVERS

2. DISCHARGES FROM POINT SOURCES INTO THE BALTICSEA

* MUNICIPAL EFFLUENTS
    *TREATED
    * UNTREATED

*INDUSTRIALEFFLUENTS
    *TREATED
    *UNTREATED

*AQUACULTUREINPUTS
    * FISH FARMING

3. DIFFUSE INPUTS FROM THE COASTAL ZONE INTO THEBALTICSEA

*AGRICULTURE
*FORESTRY
*NON-MANAGEDISLANDS

AIRBORNE POLLUTION LOAD IS NOT TO BE DEALT WITH IN PLC-3. INFORMATION ABOUT AIRBORNE POLLUTION SHOULD BE COLLECTED BY EGAP AND PUBLISHED SIMULTANEOUSLY WITH THE PLC-3 REPORT.

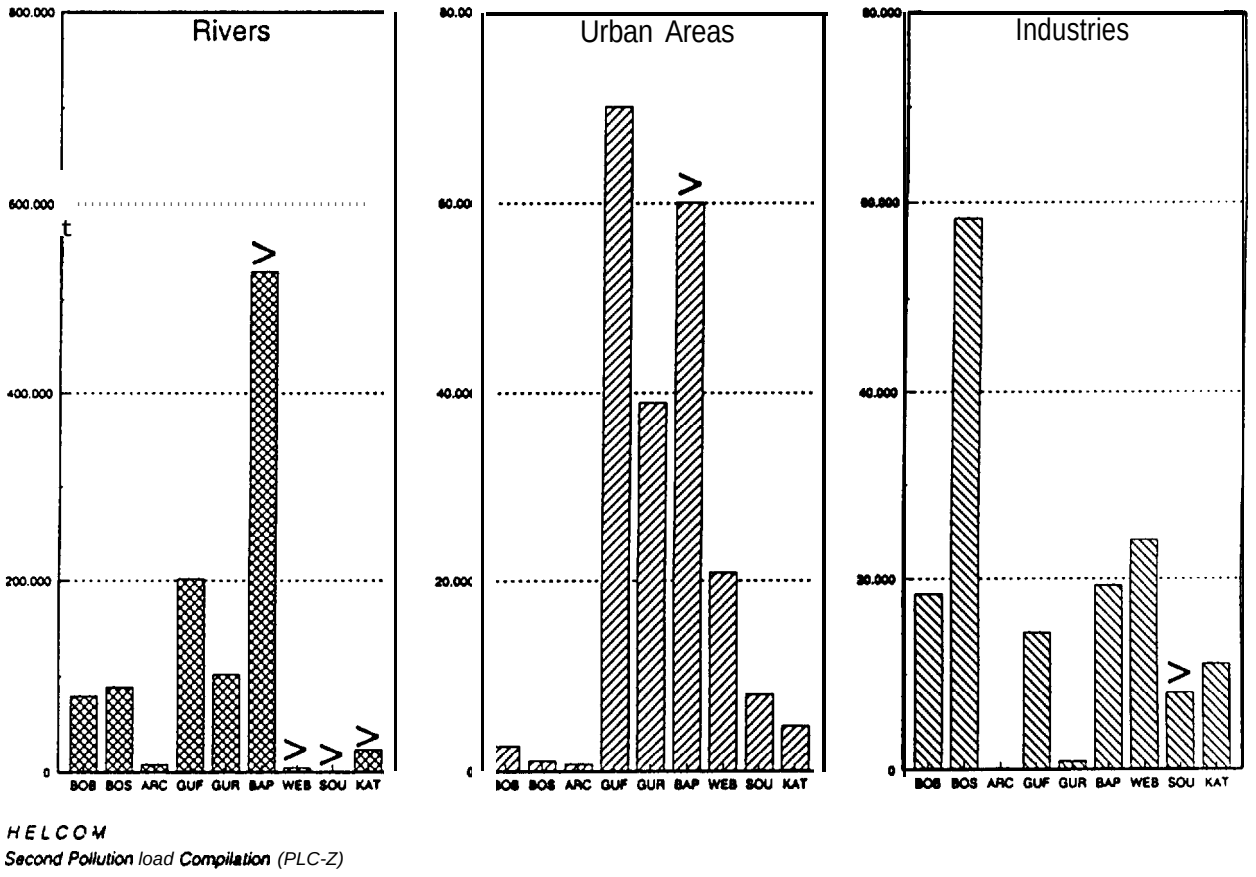
MAIN RESULTS OF THE THIRD POLLUTION LOAD COMPILATION

Table 5.1

Organic matter (BOD,) Load entering the Baltic Sea in 1990
t/a

Sub-region	Rivers	Urban Areas	Industries	Total
BOB	79 792.9750	2 730.5000	18 457.0000	100 980.4750
BOS	88 536.1300	1055.3000	58 298.0000	147 889.4300
ARC	7 780.0000	741.7000	202.0000	8 723.7000
GUF	20 1 934.9000	70 027.2400	14 323.8800	286 286.0200
GUR	101 806.9000	38 923.4000	862.6070	141 592.9070
BAP	> 529 861.6200	> 60 002.9794	19 336.2216	> 609 200.82 10
WEB	> 4 528.2600	20 804.4326	24 141.9754	> 49 474.6679
s o u	> 488.9400	8 147.7683	> 8 021.6627	> 16 658.3710
KAT	> 23 425.7650	4 843.1191	11055.3865	> 39 324.2706
Total	> 1 038 155.4900	> 207 276.4393	> 154 712.9332	> 1400 144.8626

Organic matter (BOD-7) Load entering the Baltic Sea in 1990
t/a



HELCOM
Second Pollution load Compilation (PLC-Z)

Fig. 5. la Organic matter (BOD,) Load entering the Baltic Sea in 1990

Table 5.2

Total Phosphorus Load entering the **Baltic** Sea in 1990
t/a

Sub-region	Rivers	Urban Areas	Industries	Total
BOB	2 134.1500	49.2000	162.1190	2 345.4690
BOS	1 850.6400	56.0000	355.8570	2 262.4970
ARC	664.0000	30.9000	139.5300	834.4300
GUF	7 641.7000	4 078.1060	70.2950	11 790.1010
GUR	2 704.9000	649.4600	34.2800	3 388.6400
BAP	> 14 158.1300	2 902.2010	746.9300	> 17 807.2610
WEB	1 699.2300	964.1658	123.9090	2 787.3048
SOU	223.9800	1 558.1920	100.1010	1 882.2730
KAT	2 283.3000	327.6810	117.8700	2 728.8510
Total	> 33 360.0300	10 615.9058	1 850.8910	> 45 826.8268

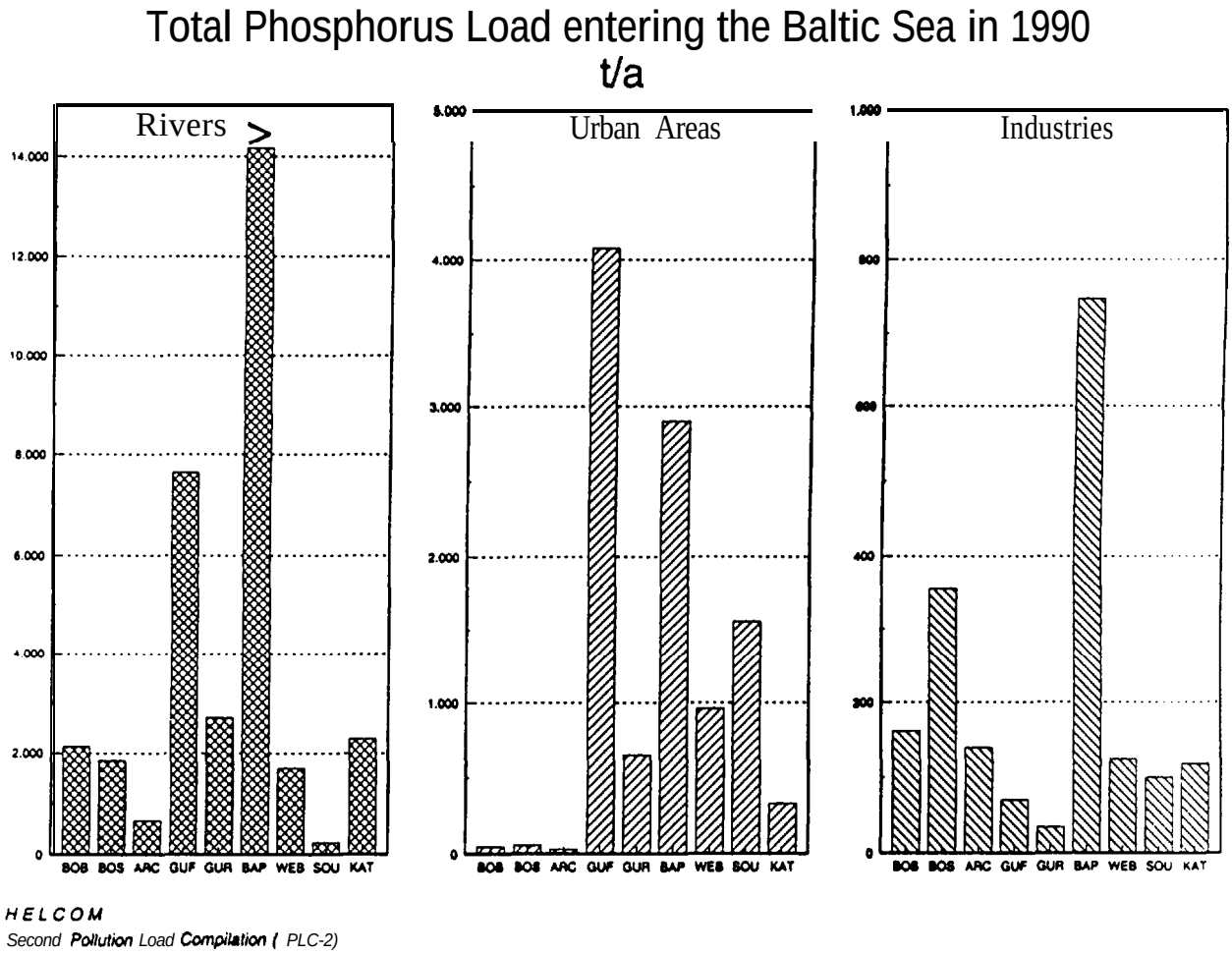


Fig. 5.2a Total Phosphorus Load entering the Baltic Sea in 1990

Table 5.3

Total Nitrogen Load entering the Baltic Sea in 1990
t/a

Sub-region	Rivers	Urban Areas	Industries	Total
BOB	35 033.7000	1 629.5000	1 567.4260	38 230.6260
BOS	42 985.0000	1 398.6000	3 096.9840	47 480.5840
ARC	7 870.0000	939.5000	1 101.0960	9 910.5960
GUF	109 529.5000	30 045.0000	867.9050	140 442.4050
GUR	79 965.8000	5 060.5000	28 1.0900	85 307.3900
BAP	182 136.1800	24 660.1750	2 462.8 100	209 259.1560
WEB	38 82 1 .0000	7 07 1.9739	1 582.9420	47 475.9159
s o u	7 591 .oooo	6 815.1100	311.1370	14 717.2470
KAT	63 806.0000	4 373.7970	85 1.4680	69 03 1.2650
Total	567 738.1800	81 994.1559	12 122.8580	661 855.1939

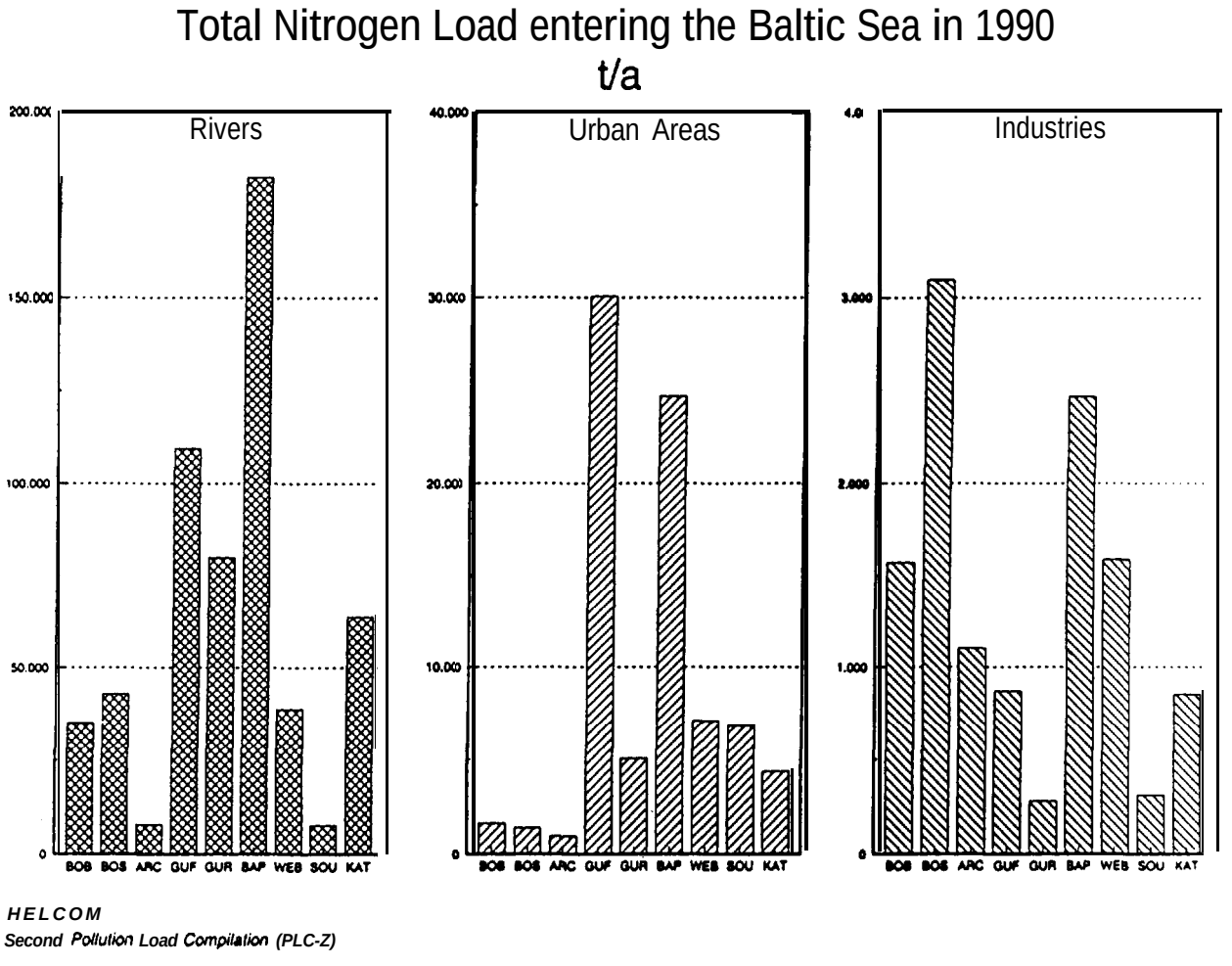


Fig. 5.3a Total Nitrogen Load entering the Baltic Sea in 1990

SOME PROBLEMS WITH DATA SUBMISSIONS FOR PLC-2

- DEADLINES IGNORED

  - DEADLINE FOR DATA SUBMISSION : JULY 1, 1991
  - REVISED: AUGUST 15, 1991
  - REVISED: SEPTEMBER 15, 1991

- DEADLINE FOR SUBMISSION OF BASIC INFORMATION: AUGUST 15, 1991

- DEADLINE FOR PRINTING THE REPORT: MAY 1993
  - REVISED: BEFORE DECEMBER 3 1,199 1
  - REVISED: MAY 1, 1992
  - REVISED: SEPTEMBER 15, 1992
  - REVISED: DECEMBER 1992 OR JANUARY 1993

- DATA SETS INCOMPLETE

  - NOT ALL REQUESTED PARAMETERS MEASURED (ESP. HEAVY METALS)

  - NO OR INSUFFICIENT BACKGROUND INFORMATION ABOUT METHODS OF
    - SAMPLING
    - ANALYSING
    - CALCULATION OF DATA

- NOT ALL REQUESTED BASIC INFORMATION SUBMITTED (E.G. COORDINATES OF INDUSTRIES)

- DATA SUBMISSION IN PARTS, NOT ALL INFORMATION GIVEN AT THE SAME TIME

- FORMATS NOT ACCORDING TO GUIDELINES

- DATA SUBMISSION ON PAPER SHEETS NOT ON FLOPPYDISK

- DATA EVALUATION AND COMPILING NOT IN REGARD TOTHEPURPOSESOFPLC

- DIFFERENT SUBAREAS

- NON-COMPARABLEPARAMETERS(E.G.BOD: BOD5, 7 AND 21)
(METHOD INFORMATION MISSING)

CONCLUSONS FOR A THIRD POLLUTION LOAD COMPILATION

1. GUIDELINES MAKE SENSE AND SHOULD BE FOLLOWED CORRECTLY

2. INTERCALIBRATIONS SHOULD BE ORGANIZED FOR:
   - SAMPLING METHODS
   - ANALYSING METHODS
   - CALCULATION METHODS

3. FREQUENCY OF SAMPLING SHOULD BE HARMONIZED AND BE AT LEAST 12 TIMES PER YEAR FOR RIVERWATERS.

4. DEADLINES SHOULD BE SET IN A REALISTIC WAY AND BE FOLLOWED

5. DATA SHOULD BE SUBMITTED ON DISKETTES AND IN THE REQUESTED FORMAT

6. A DATA BASE FOR POLLUTION LOAD DATA SHOULD BE BUILT UP

   - OVERVIEWS WILL BE GIVEN EASIER

   - COMPILATION OF DATA **WILL** BE FASTER AND CAN ALSO BE DONE FOR PURPOSES OTHER THAN PLC

   - THIS COULD HELP TO CONTROL THE EFFICIENCY OF IMPLEMENTATION OF RECOMMENDATIONS

CONCERNING THE REDUCTION OF 50% OF THE POLLUTION LOAD.

- CONNECTION TO BALTIC MONITORING PROGRAMME CAN BE FACILITATED.

GUIDELINESFORTHEPLC-3

AOVERALLPART

1. CLASSIFICATION OF POLLUTION SOURCES
2. POLLUTANTS TO BE CONTROLLED
3. DIVISION OF THE BALTIC SEA DRAINAGE AREA

B. LOAD FROM URBAN AREAS AND INDUSTRIES

l.GENERAL
2. POLLUTION LOAD FROM URBAN AREAS
3. POLLUTION LOAD FROM INDUSTRIAL PLANTS
4. POLLUTION LOAD FROM FISH FARMS

C. LOAD VIA RIVERS

1. GENERAL
2. HYDROLOGICAL PART
3. SAMPLING
4. LOAD CALCULATION OF MONITORED RIVERS

D.NON-POINTLOAD

E. METHODS FOR CHEMICAL ANALYSES

F. ANALYTICAL QUALITY ASSURANCE

DIVISION OF TASKS AND RESPONSIBILITIES BETWEEN THE HELCOM AND CP-S

HELCOM	CP-s

TASKS

- PREPARATION OF THE GUIDELINES FOR PLC-3	- IMPLEMENTATION OF THE HELCOM PLC GUIDELINES
- ORGANIZATION OF THE INTERNATIONAL INTERCALIBRATIONS IN THE FIELD OF FLOW MEASUREMENTS AND CHEMICAL ANALYSES	- DETERMINATION OF NATIONAL REFERENCE LABORATORIES AND ORGANIZATION OF THE NATIONAL INTERCALIB-RATIONS
- ESTABLISHMENT OF THE HELCOM PLC DATABASE	- COLLECTION OF THE NATIONAL LOAD DATA ABOUT DIRECT LOAD TO THE BALTIC SEA AND PRESENTATION TO THE LEAD COUNTRIES CORRESPONDINGLY TO THE REPORTING FORMATS

RESPONSIBILITIES

HELCOM IS RESPONSIBLE FOR THE DATA MANA-GEMENT AND PREPARA-TION OF THE FINAL REPORT	CS-S ARE RESPONSIBLE FOR THE CORRECTIONS OF THE PRESENTED DATA

Uwe Schell, Ministery of Nature and Environment, Kiel

Experiences with the implementation of HELCOM Recommendations in Schleswig-Holstein

When, in 1988, the Helsinki Commission first called for the expansion of sewage treatment works, the aim being the removal of nutrients from wastewater, the sewage system and wastewater treatment were already of a high standard in Schleswig-Holstein and many other parts of the Federal Republic of Germany. Almost 85% of the population were connected to sewage treatment works and all were designed for biological wastewater treatment, i.e. about 85% BOD reduction. A few inland treatment plants which discharged directly into lakes were fitted with equipment for phosphorus removal by chemical precipitation. One treatment works was even designed to remove nitrogen, but it did not work well. A good infrastructure was therefore already in place when, in 1984 and 1987 for the North sea and in February 1988 for the Baltic Sea, the decision was made to reduce phosphorus and nitrogen inputs by 50%. Ministerial declarations at international conferences would not have been sufficient, however, to speed up expansion programmes for sewage treatment plants. Instead, what was needed was a radical change in public opinion, and not just urgent reports by scientists or experts in the administration. The breakthrough in forming political and public opinion came with the mass occurrence af algal blooms and the deaths of seals in the North Sea and the Baltic Sea in the spring of 1988. For the first time, politicians and the public took an interest in the health of the North Sea and the Baltic Sea. As a result of the ensuing discussion, a readiness grew to do something to improve the environment. Widespread public support is the one prerequisite for the improvement of wastewater treatment; the other is to gain the same backing for the necessary financial package.

In the Federal Republic of Germany, the costs for

wastewater disposal plants are met by property owners. This is done with the aid of statutory regulations adopted by town councils and local authorities which decide how and to what extent their residents are to bear the costs of the construction of sewage treatment plants and the expansion of wastewater treatment. Single payments and fees per cubic metre of water used are the result.

In Germany, house owners usually pay up to 90% of the costs for the construction of a sewage system once their home has been connected to it and it is in use. The cost of constructing and expanding sewage treatment plants is met by charging householders per cubic metre of fresh water. The party liable for payment is the property owner. Charges for the construction and operation of a treatment plant (depreciation, interest payments, maintenance) are, like the running costs for the sewage system (depreciation, interest payments, maintenance), a part of the costs to be met regularly for a house or from the rent. All the relevant questions must be settled before a start is made on the sewage system construction and wastewater improvement programmes which last many years. Nevertheless, to improve sewage treatment plants as quickly as possible, as called for by the Helsinki Commision for the Baltic Sea and by other international bodies for the North Sea after 1988, additional financial incentives were needed to ensure that town councils and local authorities took the necessary decisions quickly.

These incentives took the form of a programme of special grants for the construction of nutrient-removal works; it was put into force in various ways by all of the Federal Republic's Lander governments. In Schleswig-Holstein, grants of up to 50% were initially available; now they amount to 20%. With the help of these grants, equipment for the chemical precipitation of phosphates was installed at all large treatment works within two years. The calls for a 50% reduction in phosphate input were thus translated into action very quickly.

Great technical difficulties arose, however, during the introduction of biological phosphate and nitrogen removal techniques as almost no-one in Germany had any relevant experience. The technical guidelines needed to plan and build the necessary plants did not exist.
To overcome these difficulties and to make any new scientific findings available as soon as possible, close cooperation was required with university scientists on special contracts. As a result, the scientists were actively involved in the planning stages for all of Schleswig-Holstein's large sewage treatment plants. The scientists' main task was to work out the calculation figures for the construction of the different parts and the general lay-out. Technical details and blueprints, on the other hand, were the responsibility of private-sector consultants. It was the job of administrators to organise cooperation and to assess the results before construction started.

Cooperation between scientists, private-sector engineering consultants and the authorities was excellent and this meant that remaining technical problems could be solved very quickly indeed. Everybody gained from the experience.

The first result of the intensive and country-wide discussion between university scientists, engineers and the authorities can be seen in the elaboration of new technical guidelines on how to determine the size of and construct up-to-date sewage treatment plants with additional stages for nitrogen and phosphorus removal. Using these guidelines, it was possible to construct wastewater disposal plants in accordance with new stringent national and internationl requirements. This did not quite satisfy us in Schleswig-Holstein, however, and we went even further by adapting our approach to local conditions. This means that the quality of the wastewater had to be investigated in carefully planned and executed series of tests lasting at least one week. It is not sufficient to take the design figures from the literature.

It is particularly important to record influent quantities and the quality of BOD-5/P and BOD-5/N ratios as well as the biological degradability before and after sedimentation. The COD/BOD_5 ratio is also important in that it has a crucial influence on the dimensions of the nitrogen-removal equipment.

Our experience in Germany shows that pilot tests to determine wastewater composition should last at least one week and include periods of maximum load capacity.

As a further tool for determining the dimensions of sewage treatment plants with nutrient-removal stages, a computer program called DENIKA has meanwhile been developed by German scientists. Using this program, the optimum dimensions can be determined for each plant based on the measured pollution load values and the given processes. Compared with this procedure, the figures calculated only from the tables are far higher. Pilot plants, therefore, can greatly reduce investment and running costs.

For large sewage treatment plants, f. ex. for a population-equivalent of 50,000, the operation of a pilot plant is recommended. This is especially the case when the composition of the wastewater is different from that usually recieved from households. It is only through the use of pilot plants that optimum processes and tank construction can be determined. Operating a pilot plant, however, requires a lot of time and personnel. The test period usually lasts one year because all operating conditions are to be recorded. The time and effort involved in running a large pilot plant certainly pay off in that there are no surprises later during full-scale operation and it is known which results can be expected.

In Schleswig-Holstein, four such pilot plants have been in operation simultaneously over the past few years. The plants are transportable systems that were specially designed at universities and then made available to the town councils and local authorities to carry out the test

series. The cost of constructing and operating the pilot plants was fully paid for by the government.

Finally, a word about the requirements that had to be taken into account for the planning stages. National legal regulations and additional requirements based on the regional situation were the decisive factor here. In the Federal Republic of Germany, a system of minimum requirements was developed that, in compliance with the emission principle, lays down uniform standards for discharges into the aquatic environment both for municipal and different types of industrial wastewater. Other, stricter requirements can be imposed if it is felt that they are necessary to ensure water protection because of regional peculiarities. The minimum requirements for municipal wastewater disposal plants are given in the annex. It must be remembered, however, that the national minimum requirements are linked to a specific supervisory practice which is laid down in the national regulations. In this respect, a direct comparison cannot be made with other limits such as the Helsinki Commission's Recommendations. When national minimum requirements are drawn up, however, care is taken to ensure that international and supranational requirements are met.

But this also means that most international requirements have no direct binding effect on operators of wastewater disposal plants. Instead, such requirements must first be transformed into binding national regulations before they become legally binding.

In Schleswig-Holstein, we were in the fortunate position of already having well-planned sewage treatment works which in recent years have only had to be improved to meet the Helsinki Commision's new Recommendations concerning nutrient removal. If the same conditions as in Schleswig-Holstein do not exist, thought should be given to what the completed plant should be like; this should be done at the first expansion stage or even at the construction stage. This ensures that a plant can later be improved gradually

without any great difficulty. Only when it is known from the start where tanks of what size and arrangement will be situated is it possible to plan the necessary safety devices and reserve capacity which will later ensure optimum purification under all operating conditions.

Experience in Schleswig-Holstein has shown that political programmes for the expansion of treatment plants must be clearly formulated, otherwise the financial and technical questions cannot be solved. There is little point in developing programmes that are doomed to fail because of their high cost.

What is important is that the first step leads to as high a degree of purification as possible. This can be done by constructing a mechanical-biological wastewater treatment plant or one combining mechanical treatment with chemical precipitation stages. If sufficient precipitants can be obtained, combining mechanical treatment with chemical precipitation can clearly reduce the amount of pollutants discharged significantly. Only when this stage has been introduced in most treatment plants should construction start on equipment for nitrogen removal and biological phosphorus removal. Even biological wastewater treatment in combination with chemical precipitation can drastically reduce water pollution which of course benefits the Baltic Sea.

Ministry of the Environment
Danish Environmental Protection Agency

Fresh Water
and Agriculture

September 1993

HELCOM SEMINAR
for Experts from Estonia, Latvia, Lithuania and Russia on the imple mentation of the HELCOM arrangements, other international instruments and related matters. Riga, Latvia 30 August - 3 September 1993.

National experiences in implementation of HELCOM Recommendations related to agriculture made by Denmark.

In Denmark the public concern about the environment is still on a high level although politics on economics and unemployment have been dominating in the recent years.

Denmark has been concerned about the pollution from agriculture many years before HELCOM-recommendations on agriculture were made.

Denmark has not been in a situation, where new legislation should be implemented in order to follow HELCOM-recommendations. We have only been interpreting existing Danish legislation in relation to the recommendations.

HELCOM-recommendations related to agriculture.

HELCOM Recommendation 7/2 and 9/3 recommend general actions concerning

agriculture.

Later HELCOM recommendations deal with more specific categories of losses from agriculture. The categories are:

farm waste discharges; (Recommend. 13/11)
leaching of nitrogen, mainly nitrate; (Recommend. 13/10)
leaching, run-off and erosion losses of phosphorus; (Recommend. 13/10)
ammonia volatilisation; (Recommend. 13/7, 13/8 and 14/4)
pesticides; (Recommend. 8/2 and 13/13)

The Danish approach to handle the mentioned categories is described below.

DANISH AGRICULTURE AND THE ENVIRONMENT.

Introduction.

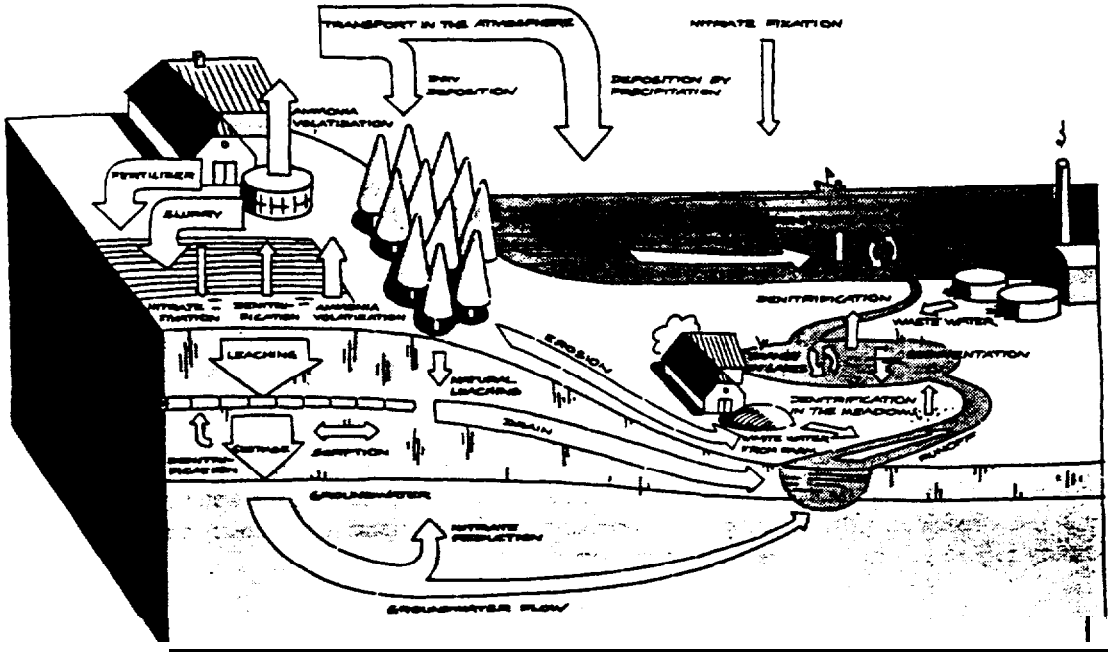
The following description will give you an idea of, what has been done in Denmark over the past 30 years in order to reduce the pollution from agriculture.

About 30 years ago the first environmental regulation concerning agricultural production was introduced. Rules were made for placing and construction of stables and manure storage facilities, though there was no public concern about pollution from agriculture.

So until 10-12 years ago the most important goal for agricultural production was to produce large quantities of good quality products without much regard for the resulting impact on the environment.

Over the past 30 years production has gone up with 50% and *there* has almost been a doubling of total fertilizer input to Danish arable soil, causing signifi-

below.



The nitrogen cycle.

Agriculture's losses go **to** the atmosphere, ground **water and to streams and lakes.** The discharges to **streams** and lakes are **augmented** by the **waste water discharges before being transported to nearshore waters and further on into** open sea. oll the **route, however,** a considerable **transformation** and in many **cases direct removal takes place, in** particular of nitrogen.

Part of the loss, the ammonia volatilization, will be carried through the atmosphere and deposit again with precipitation or directly **from** the air. This source forms a considerable part of the nitrogen load in marine areas and non cultivated areas.

The reminder of the nitrogen loss percolates from the root zone and further on to the groundwater. In areas with tile drains a considerable part will be carried directly into watercourses. Some of the nitrogen reaching the groundwater will be removed through natural reduction processes. Another removal of nitrogen takes place in wetlands, lakes and inlets so that only part of the agricultural nitrogen discharge reaches the **costal** waters.

Within the last decade in Denmark focus has been put on the increasing discharges from agriculture which has caused an increase in **nitrate** content in groundwater, increasing production of algae in lakes and marine areas leading to oxygen lag and fish mortality.

So in order to reverse this development the Danish Parliament has adopted **a** number of measures to control discharge of nutrients.

The **NPO** Action Plan.

An NPO Action plan was adopted in 1985 especially directed against nitrogen discharges caused by use of animal manure. At the same time a considerable number of studies were implemented into a Nitrogen, Phosphorus and **Organic** matter (NPO) research Programme in order to improve the understanding of the interrelationship between use of fertilizer and the effects on the aquatic environment.

In the **NPO** Action plan there was a demand for regulation concerning:

- Placing and construction of stables and storage facilities for farm yard manure (it should no longer be allowed to store manure on bare ground)

- Storage capacity for farm yard manure (6 month was required)

  A grant scheme for the construction of storage capacity.

  Use of farm yard manure (a limit was set for how much manure that could be spread per hectare - approx. 200 kg of nitrogen per hectare).

  A ban on straw burning.

These initiatives were implemented in statutory orders by the Ministry of the Environment in 1986 and a lot of people thought, that now **sufficient** measures had been taken in order to reduce nitrogen pollution from agriculture.

But in autumn 1986 new incidents of oxygen lag and fish mortality were

registered. The result of the registration lead to a rise in the public concern and a demand for further action.

The Action Plan for the Aquatic Environment.

So in 1987 an Action Plan for the Aquatic Environment was introduced and agreed upon after long and hard discussions in the Danish Parliament.

In the Action plan for the Aquatic Environment there was a demand for **further** regulation concerning:

- Storage capacity for farm yard manure (now 9 month capacity was required).

- Fertilization plans (now every farmer had to make a plan for his crops and the amount of fertilizer he would apply)

- Green fields (65% of the agricultural area had to be covered by a catch crop during autumn and winter).

There was also a demand for reducing discharges from municipal and industrial treatment plants. The overall goal of the plan was a 50% reduction in nitrogen discharges, and 80% reductions in phosphorus discharges.

These new rules from the Action Plan for the Aquatic Environment were implemented in statutory orders by the Ministry of Agriculture and the Ministry of the Environment in 1987.

In 1989 and 1990 it was obvious that the two Action Plans never would fulfil the above mentioned goals of a 50% reductions in nitrogen discharges.

So in 1990 a majority in Parliament decided that the Minister of Agriculture should come up with an Action Plan for Sustainable Agriculture before April 1991.

Just before this new plan was presented the Danish Environmental Protection

Agency calculated the effect of the two previous plans to be a 20% reduction of nitrogen so far.

The Action Plan for Sustainable A&culture.

The Plan for Sustainable Agriculture was presented in 1991 and the main object of this plan was:

- Slurry/liquid manure should not be spread in the autumn except in September for winter rape and grass.

  Solid manure may not be spread on fields in the autumn before October 20, except for fields which will subsequently have a green cover.

  Solid manure must be ploughed in immediately after spreading.

  A public control system should be set up to control the fertilization plans. Farmers will only be allowed to apply a certain amount of fertilizer for each crop. The amount of fertilizer for a certain crop has to be approved by the Danish Institute of Plant and Soil Science.

  Nitrogen in farm yard manure had to be utilized by the following rates:

	Slurry from pigs	Slurry from cows
August 1993:	45 %	40 %
August 1997:	50 %	45 %

In order to control these utilization rates farmers each year must supply the authorities with key-figures concerning their use of manure and fertilizers.

The existing grant scheme for the construction of storage capacity for

farm yard manure should be prolonged.

- Vulnerable groundwater resources in three counties in Jutland should be protected by paying the farmers to reduce the use of fertilizer and pesticides.

The plan for Sustainable Agriculture also proposed measures in order to reduce the use of pesticides as described below.

The above mentioned rules have been or are about to be implemented in statutory orders by the Ministry of the Environment and the Ministry of Agriculture.

Actions to reduce the use of pesticides.

The initiatives concerning measures to reduce the use of pesticides are related to the Action Plan to reduce the use of pesticides from 1987.

The overall goal of this plan was to reduce the consumption of pesticides before 1997. The reduction should be achieved by strengthening advice, information and research.

Moreover it was decided, that every pesticide in use shall be reevaluated and new pesticides shall be approved.

In the plan for Sustainable Agriculture the following measures are proposed in order to reduce the use of pesticides:

Research should be carried out in order to extend and develop integrated plant production systems.

Advisory activities will be reinforced to help farmers cut their use of pesticides.

- Special training courses for all users of pesticides.

Public random control on pesticides spraying equipment will be established.

- Farmers shall keep a record of their use of pesticides.

Concluding remarks.

The Plan for Sustainable Agriculture is to be implemented within the next few years and the full effect of the plan is expected by the year 2000.

In the years to come the consumption of fertilizers and pesticides will also be reduced due to changes in agricultural policy in the EEC, where it is expected that 230.000 hectares of agricultural land in Denmark will be covered by the set-aside- scheme.

All though several years will be needed before the necessary structural changes have been accomplished and before the above mentioned objectives have been achieved, the Action Plan for Sustainable Agriculture and its new series of measures are a major contribution to the development process towards a sustainable agriculture in Denmark.

Annex **1:**

The Danish approach concerning regulation of agriculture.

Danish farmers have a long tradition of forming organisations. The farmers have **organized** and developed an effective advisory service, which is independent of the public administration.

The advisory service is the most important partner to the public administrations when regulations towards agriculture are to be implemented.

Measures to implement new legislation are developed in a dialogue between the public administration and farmers **organizations.** It is to a great extent possible to identify efficient measures, that are cost-effective to farmers.

When the measures are identified it is the task of the advisory service to find means, that are appropriate to implement the measures.

Normally new regulations are integrated in the existing advisory services. Most Danish farmers consult their advisory service officers regularly. Moreover many farmers every year spend some days on courses to get their knowledge updated.

Compliance checking and enforcement is made by the public administration. As the Ministry of Environmental Protection and the EPA have no decentral branches the task concerning agriculture is very often made by the local government in the municipalities.

Annex 2:

About the Danish Environmental Protection Agency (DEPA).

DEPA is a part of the Danish Ministry of the Environment, which was established in 1973.

The Ministry consists of a Department, which serves as secretariat for the Minister for the Environment, and 4 agencies, viz DEPA, the Danish Agency for

Forest and Nature Conservation, the National Environmental Research Institute and the Geological Survey of Denmark.

DEPA deals exclusively with environmental protection. This includes the prevention and control of pollution of water, soil and air. DEPA also deals with noise reduction, chemicals, waste management and recycling and is responsible for facilitating the introduction of cleaner technologies.
DEPA is actively involved in international activities such as coordination of legislative work ind the European Communities and numerous international environmental conventions.
DEPA also administers an Environmental Support Fund which funds pollution abatement and other environmental projects in Eastern and Central European countries. Finally, DEPA provides Consultancy services and has extensive project experience from Eastern and Central Europe, Asia, Africa and Latin America.

The professional staff numbers approximately 330, consisting of engineers, biologists, agronomists, doctors (hygienists), chartered surveyors, lawyers, political scientists and economists.

Swedish Environmental Protection Agency
Margareta Stackerud
Principal Technical Officer

Product Control Measure

Background

The use of chemicals is part of our modern society and will so remain. Some of the chemicals have a negative impact on the environment, particularly on the aquatic environment. It is an important task for Helcom to minimize the impact of those chemicals in the Baltic.

Once a chemical is released into the society as such or in products (goods), the potential for exposure is established.
The reason for the selection of products as priorities for recommendations is usually due to the content of a chemical of concern. One of the characteristics is that the product in itself might not pose any problem during its 'life-time'. The problems often occur when the product has lost its function e.g. when it becomes waste (incineration, landfill etc). It might be the big challenge to cope with those problems in the future.

Different approaches to deal with these problems can be used.

- substitute a chemical of concern in the production process to a chemical with a less impact on the environment or, in this case, of less concern for the Baltic.

- apply selected precautionary principles when substitution is not possible. Such steps might involve handling and disposal of the chemical/product in a way that the exposure to the environment is brought to a minimum.

Different recommendations

The recommendation *' Basic principles in wastewater management in chemicals industry, 13/3'* is an example of the first item. One of the general principles in the recommendation includes provisions for substitution of some listed chemicals to less harmful chemicals if they might reach the environment. The list of chemicals includes organohalogen compounds and substances which may form such compounds in the environment as well as metals and metalloids.

This recommendation covers emission into the water or municipal sewage systems. From the Swedish perspective, the Swedish Environment Protection Act do apply according to which limits for emissions can be required. The request of substitute might, however, have an impact on the quality of the sludge and its use as fertilizer. According to the Swedish policy, the aim is to be able to use the sludge in agriculture in a long perspective and the Environmental Protection Agency has recently presented a plan in order to achieve that goal. The basic principle of this

recommendation is thus of great importance and we have a continuous discussion with different partners how to comply with this policy.

One of the first recommendations related to products is the *' Recommendation regarding the elimination of the use of PCBs and PCTs 6/1'.* (PCBs= polychlorinated biphenyls and PCTs= polychlorinated terphenyls).
PCBs have been of major concern for the Baltic for many years. PCBs have been used in transformers, capacitors, paints, printing inks, sealing compounds etc. PCBs have also been used as hydraulic oil, cutting oil and as a heat transfer media.
PCBs are very persistent with a negative impact primarily on the seals in the Baltic.

Even though PCBs have been forbidden for use in many countries for many years, there is still a release into the environment. The reason for that is long life use of articles and equipments containing PCBs. This recommendation concentrates also on the implementation of national programs to be established to ensure a safe and controlled collection as well as disposal or destruction of PCB containing equipments.

The Swedish experiences started earlier and the use of PCB has been regulated since 1971. All use in 'open systems' has been prohibited since 1972 and all new use of PCB has been prohibited since 1978. We are now concentrating on the phasing out of transformers and capacitors still in use. The dead line is December 3 1, 1994 and after that, all installations should be exchanged.
The regulation on hazardous waste do apply, which implies a safe destruction of the equipments.

The use of paints to prevent nuisances on pleasure boats, fishing equipments etc has been covered in the *'Recommendation concerning antifouling paints containing organotin compounds, 9/10'*. The reason for this recommendation is to reduce the amount of organotin compounds to enter the Baltic Sea Area. Tin compounds are toxic to the aquatic environment and the risk is associated with the growth-inhibiting substances in the paint which gradually leak out to the surrounding water. Alternatives are available for this use.

Antifouling paints are applied on the bottoms of boats to prevent growth of algae, sea tulips and other organisms. The growth, which is heaviest in saltwater, causes speed reduction and increased fuel consumption.

The Contracting Parties are recommended to take effective measures, not later than 1991, to eliminate such pollution. That includes, as a first step, to ban the use of such paints for pleasure boats and fish net cages and to consider the.need for restriction on sea-going vessels etc.

Sweden has, based on national considerations and in order to comply with the Helcom recommendation, issued a regulation published in June 1988. According to that regulation, antifouling paints may not be used for underwater painting of boats which have a maximum hull under 25 meters and for treatment of nets etc used for catching or cultivating fish or shell fish.

The paints intended to be used as antifouling paints have to-day to be registered before use according to the Pesticide Regulation. Paints containing organotin compounds are to-day only allowed for boats and vessels intended for Ocean traffic.

Reduction of emissions of heavy metals to the Baltic has always been a priority. Batteries contain heavy metals, some of them at a high percentage. A new recommendation was adopted at Helcom 14. *'Reduction of diffuse emissions from used batteries containing heavy metals (mercury, cadmium and lead) 14/5'*. This new recommendation supersedes Helcom recommendation 6/5 which related only to mercury and cadmium.

Batteries are products which cause concern when they become waste and the heavy metals might become bio-available. This is an example of the situation when recovery or safe disposal of spent batteries should be applied in order to avoid contamination of the environment.

In 1989, Sweden implemented an' Ordinance on Batteries Hazardous to the Environment'.
According to this Ordinance, batteries dangerous to the environment are defined to be sealed batteries with more than 0,025% mercury and cadmium as well as starting lead batteries with a weight more than 3 kg/ battery. According to this Ordinance, batteries have to be labelled and after being used, be collected separately and they are not allowed to be thrown away with the household garbage.
Used batteries could be thrown away in public boxes or returned to the seller.

Anyone, who manufactures or imports batteries dangerous to the environment, shall declare the amount of sold batteries to the Environment Protection Agency and pay a fee that corresponds to the following expenses;

- final disposal of batteries
- the information that seems to be necessary in order to inform about the measures of the regulation
- for lead batteries, collection of the batteries

The Swedish experiences so far show that the rate of collection is high for button batteries (90%) but rather low for other batteries (20-30%).

Another recommendation referring to mercury is *' Recommendation concerning measures aimed at the reduction of mercury resulting from dentistry 6/4'*.
According to the recommendation, arrangements for collection of waste containing mercury from dental clinics, laboratories and surgeries should be established. The recommendation also encourages the phasing out of amalgam.

Sweden has different recommendations for taking care of mercury waste in those areas. The most difficult area has been dental clinics, where due to many practical circumstances, the system has not worked very well. The waste of amalgam is to-day a major source of pollution of mercury in Sweden.
A fact sheet for dental clinics has recently been published by the Environmental Protection Agency. This information will hopefully improve the situation.

The *'Recommendation concerning reduction of emission of lead from combustion of leaded gasoline 9/4'* might be one of the more important ones, recognizing that a considerable amount of lead enters into the Baltic through atmospheric deposition. The most important source for that emission is automobile exhaust caused by combustion of leaded gasoline. The main message in that recommendation is that lead-free gasoline should be available. The recommendation was adopted 1988.

Sweden had already implemented an Ordinance saying that lead free gasoline must professionally be transferred at filling stations with more than one pump from July 1, 1987.

According to the Swedish experiences of to-day, we will be able to phase out leaded gasoline completely and the Environmental Protection Agency has proposed that 1995 should be the deadline. Acceptable alternatives are available on the Swedish market.

Conclusion

Recommendations on products will probably be an important instrument to control emissions of undesirable chemicals from different products (goods) in the future. So far, the implementation of the recommendations has not been so difficult for Sweden due to national regulations in force or political agreements. In the future we might approach areas where harmonization with other international organizations to a greater extent will be a prerequisite for Helcom recommendations and where all Contracting Parties will phase the same problems,

Helcom recommendations have to be implemented through national legislation. This is an important and very demanding task for the Contracting Parties.

Product control will probably be of great importance in the future Helcom work. Some questions of particular interest might be;

- goods containing chemicals, which have been identified as priorities for risk reduction,

- products such as sludge, fertilizers, whose routes of application imply a high exposure to the environment

SECTION TC
ENFORCEMENT MECHANISM OF NATIONAL IMPLEMENTATION OF HELCOM RECOMMENDATIONS

Chem.eng. Emelie Enckell, National Board of Waters and the Environment, Finland

1. General

The enforcement mechanism of national implementation of international regulations and recommendations vary from country to country depending on national legislation, administration, structure of the society and economy and on cultural factors. Exchange of information on different systems gives good advice for the development at the national level and helps the cooperation at the international level.

Concern about the national welfare, nature and recources is normally the main motive behind international agreements like the Helsinki Convention. Thus also the implementation of international recommendations will follow national needs and motives. Within one country policy instruments, administration and reporting systems for national and international activities should be integrated as far as possible.

Naturally, the choice of enforcement mechanism is often bound to the nature and level of the international agreement. A new Convention usually provides for amendments in the national legislation and statutory orders while recommendations may be implemented by statutory orders or Decisions by the Council of State (e.g. norms) or less binding but still effective control instruments.

2. The importance of preparatory work and common engagement

In Finland much attention is paid to the preparatory phase of a new international agreementor recommendation. Normally this phase covers both investigations and negotiations, during which the involved parties like polluters, authorities and research institutes.have a

chance to give their opinion and prepare for expected decisions. Thus the preparation often serves the implementation. The preparations also have a function of getting the parties tied to the goals. At least the possibilities to implement the new obligations are for the most part confirmed before the Commission's decision, after which the implementation itself is a rather easy task.

However, as we have seen, the preparatory phase preceding the (political) ministerial decisions has not followed normal routes. Some of these agreements are not well prepared and their implementation is beyond our possibilities and, in the case of the universal 50 % goal, even beyond our rational thinking. In these cases we have to agree upon the interpretation of the goals, or at least give as good an explanation as possible on our national interpretation and our national undertakings and achievements.

The involvment of many experts and interests will guarantee the best knowledge to base the decisions upon. It will give you arguments in finding the right compromises during the preparatory work and in defending the goals and decisions during the implementation. Furthermore it will help to find the right ways of implementation.

The importance of national negotiations before and after international decisions cannot be overestimated. In some cases the negotiations may have a more or less informative character. The aims of the negotiations is; in addition to the above said, to help the understanding of the nature of the international work, to rise common concern and to make different parties acquainted to the authorities involved in the international negotiations.

At the Finnish National Board of Waters and the Environment we find the internal intermitting of information and training important. Since 1989 several seminars on international items have been arranged for the district organization and several courses to improve the knowledge in languages have been held.

To intermit information and as a part of the enforcement all main decisions and recommendations ought to be translated into the national language. This is, however, a very expensive task and a task for experts in the field, and also in Finland this has caused problems. As Swedish holds the position of the second official language we sometimes find it helpful to look into the translation to the

Nordic languages. Maybe the Baltic countries could make use of their knowledge of Russian and cooperate in this context.

The translation into the national language is important for the public media, who take an interest also in the implementation. In the Western countries publicity has a great influence on both politicians and polluters. Also the agricultural sector has become sensitive to publicity. It might be of value for the enforcement mechanism in the countries in transition to analyze their situation with the aim to find similar sensitive areas and ways of penetration and influence.

3. Policy instruments

Specific policy instruments for pollution abatement and the enforcement of related international agreements and recommendations should be chosen depending both on the existing national control instruments and on the nature of the agreement. The judicial administration, the need for professional training and technical facilities, the financial questions, the supervision system, the parties involved etc. must be investigated before the final choice of instrument. The instruments for implementing Helcom Recommendations may thus differ depending on whether the recommendation concerns one substance, one branch, pollution load measurements or permitting criteria. A Helcom Recommendation may in itself serve as an instrument as it encourages authorities and polluters to voluntary implementation.

Specific instruments under the umbrella of judicial-administrative instruments are norms (standards) and permits. Examples of economic instruments are emission charges, special taxes and financial aid. The instruments may be used together to enforce the same goal, but the system should be well designed to avoid overlapping and complicated administration. In Finland we stress the Polluter Pays Principle and we prefer the permitting system to norms and standards. Economic instruments are very little in use but under developement [Annex 1).

Norms form the main pollution control policy instrument in the countries in transition and also an important instrument in EEC-countries. Obviously it is a rational if not very effective instrument on a federative level and in countries with very big population and a big number of polluters, provided that for instance emission norms are meant as minimum requirements. Arguments against norms are that

- norms may cause technical stagnation
- norms set as concentration limits do not promote efforts to decrease water cunsumption
- norms cannot be set as kg/day neither does it take into account the nature of polluter or the receiving watercourse
- to be effective norms often create a rigid system difficult to understand by individual polluters.

A chart for the comparison of the policy instruments i.e. norms, permits and emission charges is annexed (Annex 2). All systems have their benefits and applications, and a rational combination of the three together with other instruments would obviously give an optimum solution.

4. Supervision of point source polluters in Finland

The supervision of polluters in Finland is based on a notification and permit system and on the supervision of polluters' selfcontroll. The permits are given by an independent Water Court. There are about 200 factories, 500 municipalities and 370 fish farms in Finland that have a permit. The date for a new application is determined .in the permit, but changes in the production or pollution load or other circumstances may also initiate a new application process. Normally a permit is valid 3...7 years.

New international recommendations may influence the application and above all the permit conditions. Most important is, however, the technical developement and the results of the monitoring program, which have a great influence not only on single permit conditions but also on national goals. The interaction between goals, permits, research and developement on one hand and different supervision activities on the other is shown in an annexed figure (Annex 3). The figure also points out items for negotiations (Annex 4).

As may be understood the supervision of the implementation of Helcom Recommendations is totally integrated in the national supervision system.. Also the reporting to the Pollution Load Compilation is an integrated part of the normal reporting system serving the supervision. As an example the human recources and tasks of the industrial office at the National Board of Waters and the Environment is presented in an annex (Annex 5).

5. Bilateral activities

Based on earlier HELCOM Recommendations and finally on the Baltic Sea Declaration adopted at the prime ministers' meeting of the Helcom countries in September 1990 a special project was established in the Finnish Ministry of the Environment by governmental decree in October 1990 to promote environmental issues in the Baltic Region (Annex 6).

Initially a survey was carried out in order to define the "hottest" pollution sources in the vicinity of the Gulf of Finland. A total of sixteen priority targets were ultimately agreed upon. Practically all of them coincide with the Helcom list of the "hottest spots".

So far 25 investment projects have received funding and several negotiations are on-going. Moreover, close to 100 projects providing expertise, training or special studies have been funded covering several fields of environmental protection.

Finland has also made bilateral agreements in the environmental field with Russia, Estonia, Latvia, Lithuania, Poland and Sweden. In addition to these activities administrated on the governmental level there are many agreements and activities promoting the cooperation on a local level in areas adjoining Finland. Within the framework of the agreement between Finland and Russia the regional and local cooperation in environmental questions between the Kymmene region in Finland and the Karelian region, St. Petersburg and Leningrad region in Russia aims directly at the protection of the Gulf of Finland. Some other Finnish water district offices cooperate with local Estonian authorities. Most of the cooperation concern research, monitoring, training and reporting. The agreement with Sweden was signed already in the early 1970'ies with the aim to change information and coordinate the research and protection activities in the area of Gulf of Bothnia.

The tasks and the goals of Helsinki Commission are integrated in or at least parallel with the bilateral cooperation. Thus the bilateral activities essentially contribute to the implementation of Helcom Recommendations in Finland as well as in the other countries concerned.

ECONOMIC INSTRUMENTS IN ENVIRONMENTAL PROTECTION

Isabel Pipping, M.Sc. (Techn.)
Emelie Enckell, M.Sc. (Techn.)
National Board of Waters and the Environment

Despite the substantial progress made in environmental protection in Finland and other Western countries, the pollution load to the environment is still too great. Consumption is increasing and in many places, including Finland, production capacity has grown considerably. The rapid increase in fish farming has caused the eutrophication of waters that were previously in their natural state. The adverse effects of agriculture, forestry and peat production have also increased in many regions.

The policy instruments used so far to solve environmental protection problems have been largely judicial and administrative. In Finland, environmental protection policy is based partly on various permit, planning and reporting systems and partly on prohibitions and general regulations. Economic instruments have been used very little. Since certain problems can no longer be managed sensibly and effectively by administrative policy alone, it is necessary to examine the ways in which economic instruments could complement and possibly also partly replace administrative policy. The new approach is justified by both the seriousness of the environmental problems and by the increasing cost of pollution abatement. European integration, the internationalization of production, and the need for changes

in taxation, along with growing concern about pollution have also increased interest in the use of economic instruments for environmental protection in Finland.

In a communication issued in autumn 1990, the European Commission expressed its opinion that economic instruments would be more effective in preventing pollution than obligatory standards because the cost-reducing effect of economic incentives is immediately visible in the polluter's budget. However, the Commission said it believed that economic instruments had not been used effectively enough. It also said a clear distinction should be made between obtaining revenues on the one hand, and economic incentives to pollution abatement on the other. Pollution charges or taxes should be high enough to influence the polluter's behaviour. With respect to water pollution abatement, the Commission stated that pollution charges could vary from country to country and from product to product and even from one production plant to another.

In assessing the approach to be used, answers must be found to the following questions posed by a working group which submitted its report to the Ministry of the Environment in spring 1991:

- With what certainty and how soon should the targets be met?
- What form of policy would be most effective in **terms of costs and in terms of minimizing environmental hazards?**

- How well does the approach implement the **Polluter-Pays-** Principle?
- How well does the approach encourage polluters to carry out their own environmental protection measures?
- How simple and flexible are the policy instruments, and how easy are they to manage?
- How fair is the approach to different polluters?
- Does the approach allow sufficient account to be taken of individual features and circumstances?
- What will be the effect on Finland's competitiveness abroad?

The aim of economic instruments is to persuade both polluters and consumers voluntarily to choose environmentally acceptable options. The most important economic instruments include:

1) Charges and taxes
- emission charges (not in use)
- user charges (waste management, wastewater charge)
- product charges or taxes (package taxes, oil charges)
- excise tax (fuel tax)
- administrative charges (pesticide charge)
- scaled taxation (leaded/unleaded petrol)
- turnover tax (treatment of environmental protection investment under taxation)

2) Financial assistance
- assistance for investments (interest subsidies and grants)

- grants for the promotion of environmental technology
- financing of environmental research
- tax incentives (e.g. in the corporate sector via procedures associated with depreciation policies or investment reserves)
- State guarantee

3) Deposit-refund system
- deposit on bottles
- accumulators, batteries, cars (not in use)

4) Other means
- marketable permits (not in use)
- fines
- conditional fines.

The environmental taxes included in Finland's 1992 national budget are relatively low (Appendix 1). The introduction of various emission charges, such as sulphur dioxide and nitrogen oxide charges, wastewater charges, and waste charges has been under discussion. A tax on carbon dioxide has also been discussed.

The Committee on Environmental Economy which included representatives from the environmental and tax authorities, various interest groups and industry, proposed in its report in spring 1989 that economic incentives be increased and particularly that a detailed study be made of the need and prospects for introducing emission charges in different

environmental sectors. The Committee's work was continued by a group of civil servants who, in spring 1991, submitted a report to the Ministry of the Environment proposing ways of increasing economic incentives. The working group considered the following conditions to be necessary for the introduction of emission charges:

- the charge should complement present administrative policy,
- the charge should have a definite incentive effect,
- the charge should be based on measured discharges,
- the charge should be based on the annual reporting already in use, and it should be collected under the existing organization,
- when necessary, essential local features should be considered when setting the charge, and the charge should direct environmental protection investment to areas particularly sensitive to discharges.

A recent report by the National Board of Waters and the Environment deals with the applicability of effluent charges to the Finnish pulp and paper industry as a means of water pollution abatement. The report was based on the proposals included in the final report of the above mentioned working group. The National Board of Waters and the Environment has proposed to the Ministry of the Environment that the charge system be introduced as suggested in the report by the working group.

The applicability of the charge system to other sectors of industry, fish farming, municipal sewage and peat production, and the legislation and administration connected with the charge system will be investigated at a later date. Charges promoting air pollution control and waste management should also be developed along with the effluent charges, so that they would form a legislative and administrative entity. This would encourage polluters to draw up programmes of action to take full account of environmental protection issues. Economic incentives for agriculture and forestry to do the same should also be developed.

ENVIRONMENTAL PROTECTION RELATED TAXES IN 1992

APPENDIX 1

ENERGY

Fuel	Coal tax
* Coal	FIM 16.80 per tonne
* Industrial fuel oil	2.10 pennies per kg
* Domestic heating oil	2.10 pennies per litre
* Natural gas	1.05 pennies per m^3
* Peat	FIM 2.10 per MWh

Petrol	Tax	Additional tax
	(pennies per litre)	
* Unleaded petrol	168	
* Petrol mixture	168	22.5
* Other petrol	168	45
* Diesel oil	77	27

FERTILIZERS

	Tax (FIM per kg of nutrient)
* Phosphorus	1.70
* Nitrogen	2.90

ADDITIONAL TAX ON NON-RETURNABLE PACKAGES

	Additional tax (FIM/l)
* Soft drink packs	2-3
* Beer packs	1

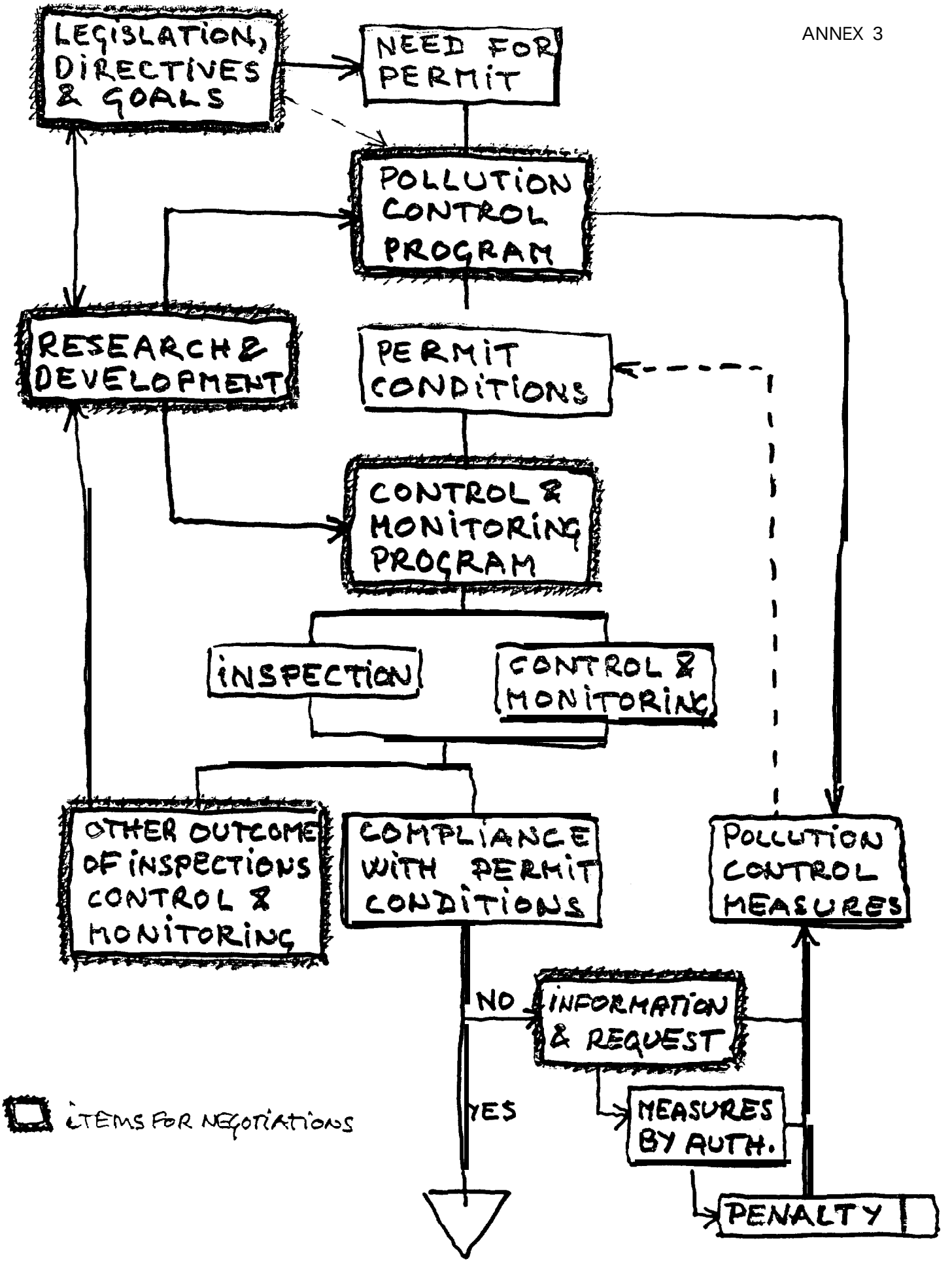
OTHER

* Oil pollution control charge	FIM 2.20 per tonne
* Waste oil disposal charge	FIM 0.25 per kg
* Pesticide charge	
* Claims for compensation in accordance with the Water Rights Court decision (e.g. fish re-stocking programmes)	

COMPARISON OF POLICY INSTRUMENTS FOR ENVIRONMENTAL POLLUTION ABATEMENT

	NORMS	PERMITS	EMISSION CHARGE
TARGETS	Minimum requirements on national level.	Individual requirements according to - BAT - effects.	Technical developement. Incentive impact beyond permit conditions and norms. Pollution included in prices.
SUBJECT	Industrial branches and other sectors with numerous similar polluters.	Individual polluters. Big polluters.	The same as for norms and permits.
FORM	Technical standards. Emission norms as mg/l, if possible kg/t.	Differentiated conditions. kg/d, in some cases kg/t or mg/l and red. %	FIM (ECU)/kg with or without emission target level.
NEGATIVE FEATURES	Applicability restricted. Weak incentives - technical stagnation, or rigid systems difficult to understand. mg/l→ big water consumption. Weak relation to effects.	Heavy administration. Slow procedure. Old permits.	Applicability restricted. Low charge - fiscal tax - weak incentive impact. Provides for frequent monitoring.

25.8.1993 NBWE/Enckell/hl



SUPERVISION OF POLLUTERS

25. 8. 1993 Enckell

TRAINING COURSE ON ENVIRONMENTAL MANAGEMENT FOR INDUSTRIAL MANAGERS AND ENGINEERS FROM ESCAP COUNTRIES (1989)

Acting office manager, chem.eng. Emelie Enckell-Sarkola
National Board of Waters and Environment,
Box 250, **SF 00101 HELSINKI, Finland**

NEGOTIATIONS WITH AUTHORITIES

1. INTRODUCTION

Industrial managers and engineers work within a framework of economical, technical, legal and social possibilities and restrictions. Within this framework the environmental objectives are of growing importance. In aiming at an optimal environmental protection and a rational use of natural resources enterprises and authorities have different roles, responsibilities and means. To meat the objectives the society and the environment call for they have to collaborate and to negotiate.

In Finland the environmental legislation is very split. There are the Water Act (264/61), the Waste Management Act (673/78), the Air Pollution Control Act (67/82) and the Chemical Act (744/89) just to mention some acts of central importance. The water protection is supervised by the National Board of Waters and Environment and its 13 districts. Permits for effluent dicharge or other pollution or change of a watercourse are given by the Water Court. Waste management and air pollution control are supervised by the County Governments and on a local level by the municipal authorities. Permits are given by the County Governments. Other authorities with environmental responsibilities are the labour protection authorities, the health authorities and the technical inspection authorities. In many countries the environmental legislation is more coherent. In Finland a more uniformlegislationand administration is under development.

2. ITEMS AND OBJECTIVES FOR NEGOTIATIONS

2.1 Establishment of new plant or production change

Already at the preliminary stage of planning a new establishment the necessary permits and environmental aspects are to be surveyed. The enterprise is expected to comprehend that the environmental criteria may affect localization as well as other economic and technical decisions. Even in case of changing the production, raw materials or technical devices at an existing plant the authorities should be informed as soon as the principal decision has been made and negotiations should be initiated to survey the possible need for renewing the permits.

The information to be given to the environmental authorities on a new project is quite comprehensive and should cover production processes, use of raw materials and chemicals, pollution control measures, lay out of sewerage and landfills, estimates of effluents and emissions and their impact on the environment, description of the recipient, timetable of the project etc. At the first meeting the authority will probably ask for more information, e.g. on technical alternatives and details, emergency plans, waste handling, effluent and emission quality, toxicity data, state of the art on the environmental quality etc. Essential information called for to assess the need for wastewater pollution control measures is drawn up in figure 1.

The enterprise, for its part, might wish to know about application procedures, environmental criteria and standards and likely permit conditions. The authorities can, however, in generalnotbe expected to give detailed permit conditions at this stage.

To sum up, the aim of the first negotiations is to exchange information and to find out which permits are needed and what plans and reports and other information are to be included in the application documents. Special studies and research programs to be carried out by the enterprise and- more rarely – by the authorities, should also be looked into.

At the next stage negotiations may be called for to assess the results of new studies and to make sure that application documents are sufficient. At the same time more information on details and likely permit conditions might be exchanged. It should, however, be pointed out that the enterprise prepares the application documents independently and that no definite agreements on permit conditions can be made at this stage. The aim of achieving an understanding is mainly to speed up the handling of the case.

When a permit is issued the permit conditions might not satisfy the enterprise or the authorities concerned. At this stage, the court appealed to might initiate negotiations between the enterprise and the authority. The aim of the negotiations is to help the court to find the right solution and to accelerate the procedure.

2.2 Implementation of permit conditions

There ought to be an understanding between the enterprise and the supervising authority on the interpretation of the permit and the permit conditions. There also ought to be an agreement on the supervision policy. It is therefore most important to agree upon a monitoring, control and reporting program, that is documented and approved at a responsible level.

The effluent and air emission monitoring programs are mostly carried out by the enterprise itself or by a consultant payed for by the enterprise. The control and reporting system should also include record-keeping at strategic processes and plants like wastewater treatment plant, and reporting on the use of raw materials and chemicals. Since monitoring is quite expensive it is important to find a costefficientcontrolprogram. However, it should be understood that the supervising authorities' need for information is great. Moreover, it should be pointed out that the supervising authority always has the right to make inspections, take samples, check the diaries, talk to the staff and so on.

In case permit conditions include an obligation to make some studies or plans for future pollution abatement, these should also be supervised and approved of by the authority. In this case as well as in the case of formulating the control program referred to above it is usual that negotiations are initiated by the enterprise, who also should prepare the preliminary documents for discussion.

Whenever an enterprise deviates from permit conditions the supervising authority should be informed. The situation might also call for a written report and negotiations. In case a disturbance can be foreseen the information should be given in good time so that interim arrangements can be agreed upon to minimize the effects of the disturbance. Accidents, on the other hand, might call for studies of technical efficiency, responsibilities, emergency plans and environmental effects.

In case of prolonged illegal situation the enterprise must be prepared to make extended efforts to meet the permit and other legal conditions. If this does not seem feasible technically and/or economically it might be preferrable to apply for new permit conditions. In this case it should, however, be advisable to check whether the supervising authority can agree with the enterprise on the technical reasons for a new permit. This procedure is very exceptional and has resulted in new permits only in a few cases. Mostly, the enterprise ought to check its own pollution control policies.

2.3 Other kinds of negotiations

Sometimes there might be other reasons for arranging meetings between enterprises and authorities than the permit of a single plant. Such reasons might be sectorial and regional. Items to be discussed might concern for instance research anddevelopment, regional plans, laws under development, or international recommendations.

3. PRACTICAL ARRANGEMENTS FOR NEGOTIATIONS

Most of the items negotiated between an enterprise and the authorities call for well prepared documents, reports and discussion papers. Generally contact is taken by the enterprise, who also prepares most of the papers and hosts the meeting. Quite often the authorities are interested in visiting the production plant where they can become aquainted with processes, treatment plant, laboratory, landfills and surroundings. However, if the authority is well aquainted with the plant and there is no need for such a technical visit or if the negotiations are of a more general sectorial or high level nature the meetings may as well be hosted by the authority.

The first contact is taken in good time before the meeting in writing or orally. At the same time the items to be discussed are clarified and the necessary background papers noted. Sometimes negotiations are extended with informal meetings. This helps to a better knowing of each other.

The enterprise has to accept and be prepared for unannounced visits by the local authorities. During such visits technical inspections and sampling are often made. The enterprise may be requested or ordered to give sometechnicalassistance to the visitors but it is not assumed that managers attend the inspections.

4. PSYCHOLOGY OF NEGOTIATIONS

The psychology of negotiations between enterprises and authorities differs somewhat from the psychology of business relations.

The relation between enterprise and authority should be open, friendly and – above all – pertinent. It is important that there is an understanding of each others' role and responsibility. A good rule is – like in business relations: be yourself and get to know your partner.

If permit conditions are violated, if the negotiation partners cannot agree upon the legality of the situation or if they cannot agree upon the technical economical possibilities that the enterprise has or should have to abate the pollution or to monitor effluents, emissions or the quality of the environment, then the negotiations might turn to a battle. Such a situation demands for much time and effort from both sides and it should be avoided at least as resulting from personal antipathy and impertinent means. Such situations should also in time be brought up to a sufficiently high level, ultimately to the court. Another good rule in this context is: never show aggressions. Promise rather to do what you can, although, at the moment, you do not think you can do anything. As soon as a conflict such as referred to above is overcome the situation should be followed up and the contact continued on an equal and respectful basis.

In Finland as well as in most other countries bribery is not allowed. Neither must an official neglect his duty. Both are crimes which can be punished with a fine or up to one or two (in grave cases of bribery even four) years of prison. The rules for secrecy are also important for the psychology of negotiations. Documents under preparation are not public. Neither is it allowed to diclose so called business secrets orothereconomic facts given with confidence to the authorities.

The authority should not be used as a consultant, he can never be responsible for a failure. Although he might be keen on knowing the best pollution control techniques he is never a specialist on the circumstances at the enterprise which will affect costs and applications.

Be long-sighted. The enterprise as well as the society will profit from people who understand that business and environmental objectives are not antagonistic.

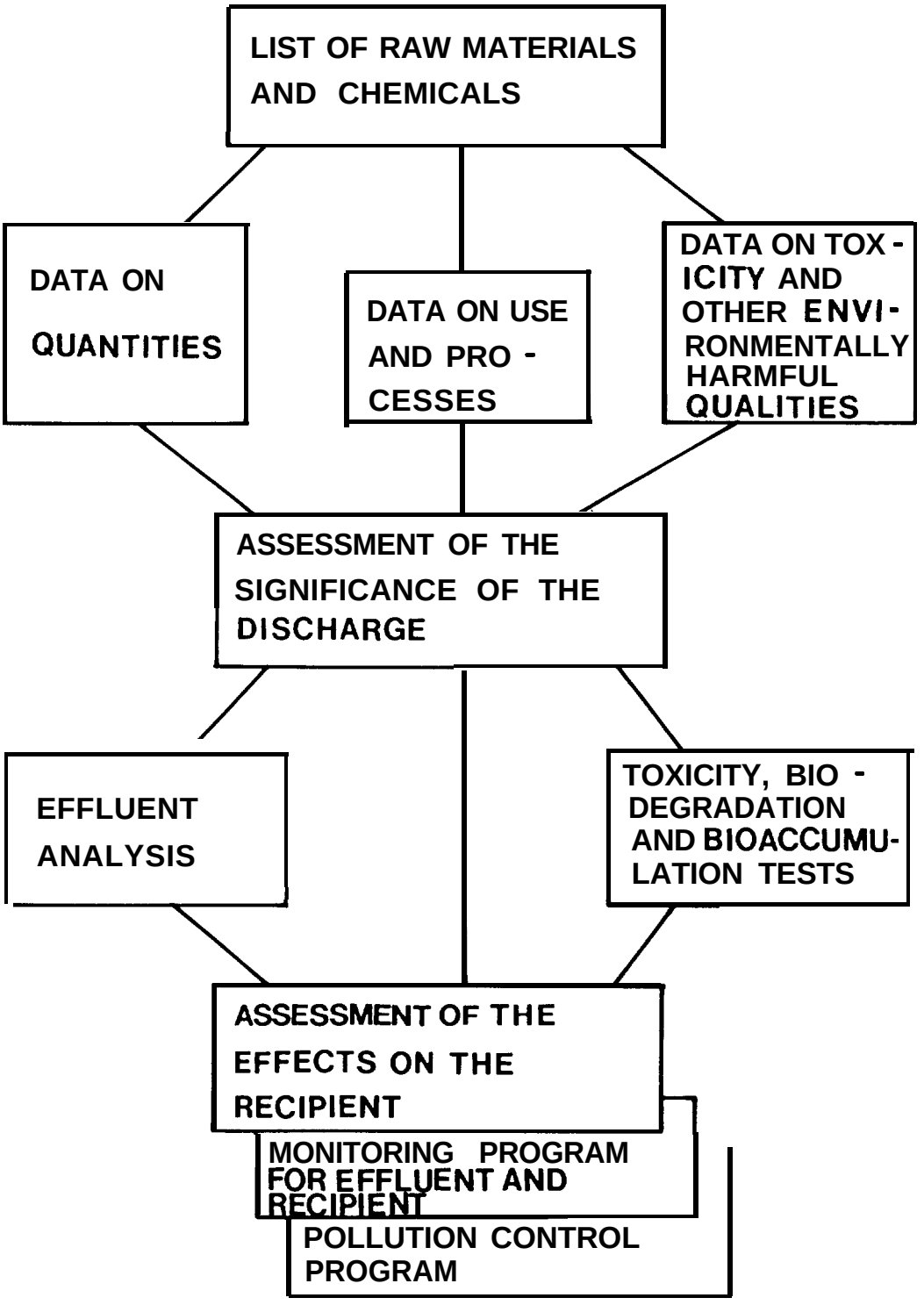


FIGURE 1. PROCEDURE FOR ASSESSMENT OF EFFLUENT TOXICITY, MONITORING AND POLLUTION CONTROL

ANNEX5

Tasks and personnel in the industrial office of the National Board of Waters and the Environment

WHY?

Water legislation

WHO?

Industrial office
- engineers (8)
- limnol.+ biol. (3)
- economists (2)
- others (4)

13 districts
- 1-2/district office

WHOM?

Industry
a) Permits by Water Court
- pulp & paper (49)
- mech wood (4)
- chemical (17)
- mines (11)
- metal works (9)
- metal workshops (13)
- textile + leather (11)
- food (45)
- power plants (13)

b) smaller plants ('150)

Fish farming
a) Permits by Water Court (-370)
b) Smaller plants ('150)

HOW?

Supervision: coordination + development + consultation

Projects:
- Surveys + investigations
- Participation in research
- Directives + Recommendations (→ districts)
- Goals + Principles
- Participation in Committees etc.

Information service: Statistics + Reports
Education (-> districts)
International cooperation

25.8.1993 Enckell

MINISTRY OF THE ENVIRONMENT IN FINLAND
East Europe Project

Jaakko HENTTONEN
Project Coordinator
National Board of Waters and the Environment

BALTIC SEA WATER SUPPLY AND SEWERAGE UTILITIES WORKSHOP
Riga 16.-18.2.1993

ENVIRONMENTAL COOPERATION BETWEEN FINLAND AND HER NEIGHBOURING COUNTRIES IN EASTERN EUROPE

A Brief Summary on Selected Aspects

1. Project History

Based on earlier HELCOM recommendations and finally on the Baltic Sea Declaration adopted at the prime ministers' meeting of the HELCOM countries in September 1990 a special project was established in the Finnish Ministry of the Environment by governmental decree in October 1990 to promote environmental issues in the Baltic Region.

As part of the overall action programme of Finland for cooperation with Eastern European countries the environmental programme forms an essential aspect. The primary aim of the Project is to reduce the amount of environmental pollution in the Baltic Sea basin area with the main focus on the areas adjoining Finland.

The project implementation will take place in very close cooperation with the environmental authorities in the respective countries through frequent meetings. and exchange of documents (presently Estonia, Latvia, Lithuania, Poland and Russia). Moreover, direct cooperation of authorities, institutes and companies active near state boundaries is being encouraged. However, all activities receiving project support are jointly coordinated.

Initially a survey was carried out in order to define the "hottest" pollution sources in the vicinity of the Gulf of Finland. A total of sixteen priority targets was ultimately agreed upon. Practically all of them coincide with the HELCOM list of the "hottest spots".

The Project has three main lines of action, namely:
– Support to investments aiming at the set targets through partial funding of joint commercial contracts;
– Promotion of training, research, appropriate administration and application of relevant technologies;
– Active participation in preparation comprehensive sector or feasibility studies with international financial institutions.

Financing of various actions depends on the basic approach i.e. investments up to a maximum of 50% of the foreign (Finnish) contribution; training,various studies and application of non-conventional technologies etc.

until 80-100%. All local costs will always be carried by the receiving parties. Hence it may well be seen that any project will necessitate a profound involvement of the cooperating parties.

Until today the Finnish government funding through its regular budget for environmental investments include for Estonia USD 7 million, Poland USD 6.5 million and Russia 4 million. Technical assistance includes respectively for Estonia USD 0.8 million, Latvia and Lithuania USD 0.2 million, Russia USD 1.8 million, joint projects USD 1.2 million and trust funds USD 1.1 million.

The main effort regarding investments has been aimed at improving/maintaining the operational capacities of vital infrastructure like waste water treatment facilities with provisions for spare parts and completion of unfinished structures. It has become quite clear that meanwhile the feasibility studies are being carried out urgent actions for running the facilities are pertinent. During these preliminary actions training also may take place in a very effective and practical way.

So far 25 investment projects have received funding and several negotiations are on-going. Moreover, close to 100 projects providing expertise, training or special studies have been funded covering several fields of environmental protection.

2. Successes and failures

Due to the low-profile and careful initial phases of the project in the first place and secondly to the long-term previous scientific relations with all the cooperating countries no particular failures have been recorded so far. Delays in various developments were to be expected as normal routine and the severe economical conditions have to be taken into account at every step as part of the programme. These problems have been discussed and must be dealt with jointly to find proper solutions at each case.

Without going into details considering successful elements of the project the joint preparation of the initial survey stands as the primary cornerstone for any successes. Annual programmes are prepared jointly as well, which will enable a flexible focusing of the attention to most pertinent questions taking into account long-term developments as well. From this standpoint direct contacts and good relations have been established with all parties concerned and in such a way several bureaucratic obstacles may be overcome. Through honest and direct exchange of opinions the best results will be obtained.

As succes criteria the considerable allocations of funds in Estonia, St.Petersburg and Carelian Republic to the projects and studies under the present conditions indicate the high priority the environmental issues are receiving presently. The initial early implementation of selected concrete projects has contributed remarkably to raising the motivation necessary for actions in this field.

3. Role of the East Europe Project

Developing a programme is always a learning process and consequently previous lessons have to be studied with care. In reference to the above our role will continue firstly as advisory one in the development of the necessary environmental administration through practical operations, secondly as promoter for environmental investments and thirdly as policy-maker in cooperation with the respective authorities and international organizations.

We consider both policy-making and promotion of investments equally important. However, any investments have to follow requirements set by national and regional policies. In any case external support to investments will reduce the risks for the governments to allocate funds for the benefit of the environmental projects.

Moreover, the project will act as a channel to promote cooperation between companies from Finland and the cooperating countries for joint development of environmental technologies. The project encourages studies and other steps which would lead to potential commercial partnerships.

4. Critical Steps

There are enormous needs craving for solutions within the sector simultaneously. Due to grave economical situation the environmental sector as a whole will not receive adequate funds from the national resources to carry out even the most urgent actions. Major contributions are required externally.

In order to proceed smoothly for improving the utility performance national sectoral master plans are inevitable starting points. Also for development of these plans external technical assistance (both finance and expertise) is required.

However, the performance of most utilities remains below requirements at the moment due to various reasons. In order to maintain any performance level some immediate actions have to be taken. It would be of great benefit to define before the Gdansk meeting even the vital needs at the moment i.e. what are the requirements in the shortest future to keep the utilities in running condition. On the findings a short-term programme could be drafted in a reasonably short period of time.

Both of these steps are critical and have to be developed simultaneously. We should bear on our minds that the water supply and sewerage utilities are working under extremely difficult circumstances with scores of daily problems to overcome. At the same safe water is one of the crucial commodities to be quaranteed in a modern society in a reliable way. This is our common task.

HELCOM SEMINAR FOR EXPERTS FROM ESTONIA, LATVIA, LITHUANIA AND RUSSIA ON THE IMPLEMENTATION OF HELCOM ARRANGEMENTS, OTHER INTERNATIONAL INSTRUMENTS AND RELATED MATTERS

Riga, Latvia 30 August – 3 September 1993

COORDINATION OF NATIONAL ACTIVITIES RELATED TO THE SCOPE OF THE HELSINKI COMMISSION WITH A SPECIAL EMPHASIS ON MATTERS RELATED TO THE TECHNOLOGICAL COMMITTEE OF THE COMMISSION

Mirja Siltanen
Inspector
Ministry of the Environment, Finland

Background history in Finland

The 1974 Helsinki Convention entered into force in 1980. Prior to this, matters related to the implementation of the convention were co-ordinated by the Interim Helsinki Commission and its Working Groups. Thus, ever since 1974 there has been a need to find ways and means of co-ordinating national activities related to the work of the Helsinki Commission (HELCOM).

In Finland, establishment of a national ad hoc Committee for Marine Environment (later the Advisory Board for the Marine Environment) has proved out to be the most efficient way of co-ordinating the numerous questions at issue – not only within the Helsinki Commission but also within other international fora dealing with marine environment protection.

Particularly during the pioneer period, when no Ministry of the Environment existed in Finland and when new challenges and varying situations called for a prompt response, this arrangement proved out to be an excellent one due to its wide coverage and minimum bureaucracy.

Naturally, since the establishment of the Ministry of the Environment in 1983, and along with the experience gained by all authorities and their representatives concerned, the emphasis of preparation and decision making has gradually been more and more within the authorities. However, the existence of the Advisory Board for the Marine Environment is still deemed to be of utmost importance since it provides a forum for exchange of various views and ideas and negotiation of the position to be taken.

Finnish Advisory Board for the Marine Environment

The Finnish Advisory Board for the Marine Environment is established by a Presidential Decree and it works in connection with the Ministry of the Environment (see

appendix 1). Members of the Board are nominated by the Council of State for a three year period at a time. The task of the Board is to give advise' to the Authorities in matters related to Finland's participation in international co-operation on the protection of the marine environment.

Members of the Board represent the Ministries for Foreign Affairs, Environment, Agriculture and Forestry, Traffic and Communications, as well as the Provincial Government of Åland, Finnish Frontier Guard Head Quarters, the National Board of Waters and the Environment, National Board of Navigation, and the Finnish Institute of Marine Research. Representatives of the Central Associations for local authorities, industry, agriculture and forestry, shipowners, ports, and nature conservation are permanent advisors to the Board. The Board is summoned to a meeting when need arises to discuss Finland's position on questions of principle and matters at issue in the Helsinki Commission (mainly the Commission level questions) and in other international marine environment protection fora. On an average, the Board meets six times a year.

The Board is presently chaired by the Head of the Environment Protection Department of the Ministry. The Counsellor for International Affairs at the Ministry is the vice-chairman of the Board. The "HELCOM co-ordinators" at the water management section of the Ministry serve as the Board's general secretary and her deputy.

The Board has established four Sub-Committees in accordance with the structure of the Helsinki Commission, i.e: Sub-Committees for research, technology, navigation, and combatting matters. These Sub-Committees consider detailed questions and matters at issue in the Helsinki Commission's Committees and Working Groups and in the committees and working groups of other international marine environment protection organizations. The Sub-Committees are chaired by the representatives of the national Authorities concerned. The members of the Sub-Committees represent all Authorities and other parties involved with the mandate of the Sub-Committee in question. (see appendix 2.)

Organization of national work in Finland related to the Technological Committee, TC, of HELCOM

We have, on one hand, in the Ministry of the Environment a section responsible for water management affairs. In this section, we have two persons dealing with the overall co-ordination of national HELCOM matters. The experts responsible at the water management section for matters related to industrial and municipal discharges ("POINT experts") and for matters related to agriculture and forestry ("DIFF expert"), respectively, are also responsible for the preparation of these matters within the HELCOM context.

On the other hand, we have the Sub-Committee for Technology of the Advisory Board for the Marine Environment. The chairman of this Sub-Committee is the director of the water

management section of the Ministry. The members of the Sub-Committee represent the Ministry of the Environment, the National Board of Waters and the Environment, the Ministry of Agriculture and Forestry, as well as the central associations for local authorities, industry, agriculture and forestry, and nature conservation.

The relationship of the Sub-Committee for Technology with the Ministry of the Environment and with other authorities and parties dealing with matters related to the Technological Committee of the Helsinki Commission is illustrated in appendix 3.

Documentation flow and decision making

The flow of HELCOM TC documentation to and fro the Helsinki Commission Secretariat is co-ordinated via the water management section of the Ministry. When action is needed (as always is the case) the document in question or matter at issue is taken under consideration by the "POINT" or "DIFF" experts of the water management section, who in turn communicate with the other authorities and parties concerned. At regular intervals, and always when needed, the Sub-Committee for Technology of the Advisory Board meets to discuss the general approach and also details in case various views have been presented. The Sub-Committee gives its recommendation for a conclusion.

This conclusion, after consideration at the water management section of the Ministry, and if needed after technical and linguistic editing, is forwarded from the water management section to the HELCOM Secretariat and/or to the lead-country concerned.

In matters of general policy making importance, or in the preparation of Finland's readiness to adopt a certain HELCOM Recommendation at the annual Helsinki Commission session, the drafts in question are sent from the water management section of the Ministry to all parties concerned for official comments. The comments are considered by the Sub-Committee for Technology of the Advisory Board for the Marine Environment and after that by the Board itself. The final decision is taken by the Ministry of the Environment together by the other authorities concerned.

The President of Finland appoints a Delegation for each annual session of the Helsinki Commission.[1] In the course of the session, the Delegation acts in accordance with its authorization.

The annual cycle of national preparation of HELCOM TC matters is illustrated in Appendix 4.

---

[1] Decision concerning Finland's participation in HELCOM's Committees and Working Groups meetings is made by the Ministry of the Environment after consultation with other authorities concerned.

Matters related to the other Committees of HELCOM

Co-ordination of matters related to other Committees of the Helsinki Commission, and when appropriate, other international marine environment protection fora, **is organized in a similar manner between the Board and the authorities and other parties concerned.**

HELCOM documentation archives

Since the HELCOM documentation adds up to a considerable amount, only most important documents are filed at the official archives of the Ministry. Other documents form a semi-official archive at the water management section of the Ministry. This archive is organized in accordance with the HELCOM structure, that is, for each HELCOM activity there is a special numerical code and the documents are filed within the code in chronological order.

No. 187
DECREE ON THE ADVISORY BOARD FOR THE MARINE ENVIRONMENT
March 6, 1981

Section 1 (28.9.1990/898)

There shall be an Advisory Board at the Ministry of the Environment acting as an advisory body in preparing measures required by the international conventions referred to in section 3 of the Act on the Prevention of Marine Pollution, and to promote and coordinate protection of the marine environment and related tasks.

Section 2

The Advisory Board shall consist of a chairman, a vice-chairman and a maximum of 13 other members, each of whom shall have a personal deputy. all appointed by the Council of State for three years at a time.

The members shall represent expertise from at least the following areas: foreign affairs, environmental protection, water protection, navigation, marine research and other research concerned with the marine environment.

If the chairman, vice-chairman or other member or deputy member of the Advisory Board should resign or die during his term of office, the Ministry of the Environment shall appoint another member or deputy member for the remainder of the term. the appointment to be made upon the proposal of the same authority or organization as made the original proposal. (28.9.1990/898)

Section 3

It is the task of the Advisory Board:

1) to promote protection of the marine environment, and to execute and coordinate related tasks;
2) to prepare matters to be dealt with in international commissions and the organs thereof founded under conventions to protect the sea binding on Finland, insofar as they are applicable to Finland and Finnish participation in international cooperation in this field;
3) to issue statements to the authorities upon request and to promote cooperation between authorities;
4) to monitor international developments in the field and to make initiatives based thereupon;
5) to make initiatives for the promotion of environmental marine research;
6) to promote the dissemination of information on protection of the marine environment; and
7) to carry out any other tasks designated by the Council of State or the Ministry of the Environment as part of, or related to. the area of competence of the Advisory Board.

Section 4 (28.9.1990/898)

The Advisory Board's working order shall be issued by the Ministry of the Environment upon a proposal by the Board.

Section 5

The Advisory Board may establish sub-committees for the preparation of various matters.

Within the bounds of the working order, the subcommittees may also be entrusted with making proposals, issuing statements and carrying out other tasks on behalf of the Advisory Board.

Section 6

The Ministry of the Environment may permit the Board to invite persons to join its sub-committees. except to the post of chairman, who are not members of the Board itself. At subcommittee meetings. these sub-committee members shall have the same rights as members of the Board. (28.9.1990/898)

The fees, travel compensation and per diem allowances paid to sub-committee members shall be subject to the rules on fees and compensation for members of State committees.

Section 7

The Advisory Board and sub-committees thereof shall constitute a quorum when the chairman or vice-chairman and at least half of the members, including, for sub-committees. the sub-committee members, are present.

Section 8 (28.9.1990/898)

The Board may have a civil servant appointed by the Ministry of the Environment as its general secretary. In addition, civil servants from the Ministry of the Environment and persons engaged by the Board may serve as secretaries to the Board and its sub-committees.

Section 9

The regulations on State committees shall othemise apply to the Board.

Section 10 (28.9.1990/898)

As necessary. more detailed regulations on the implementation of this Decree will be issued by the Ministry of the Environment after consulting the Ministry for Foreign Affairs, the Ministry of Agriculture and Forestry, and the Ministry of Transport and Communications.

Section 11

This Decree comes into force on April 1,1981.

Measures needed to enforce this Decree can be taken before it comes into effect.

Finnish National Advisory Board for the Marine Environment

Established in 1981 as a successor to the *ad hoc* Committee for Marine Environment

TASK

- To give advise to the Authorities in matters related to Finland's participation in international co-operation on the protection of the marine environment

MEMBERS REPRESENT

- Ministry for Foreign Affairs
- Ministry of the Environment
- Ministry for Agriculture and Forestry
- Ministry of Traffic and Communications
- Provincial Government of Aland
- Finnish Frontier Guard Head Quarters
- National Board of Waters and the Environment
- National Board of Navigation
- Finnish Institute of Marine Research

PERMANENT ADVISORS from the central associations for

- Local Authorities
- Industry
- Agriculture and Forestry
- Ship Owners
- Ports
- Nature Conservation

- The Advisory Board for the Marine Environment
  is summoned to meetings to discuss Finland´s Position
  on the questions of principle and matters
  at issue in intenational **Commissions**

- Chairman and Vice-chairman from the Ministry of the Environment

- Secretary General and Deputy from the Ministry of the Environment
  (who deal with marine environment matters also
  at the water management section of the Ministry)

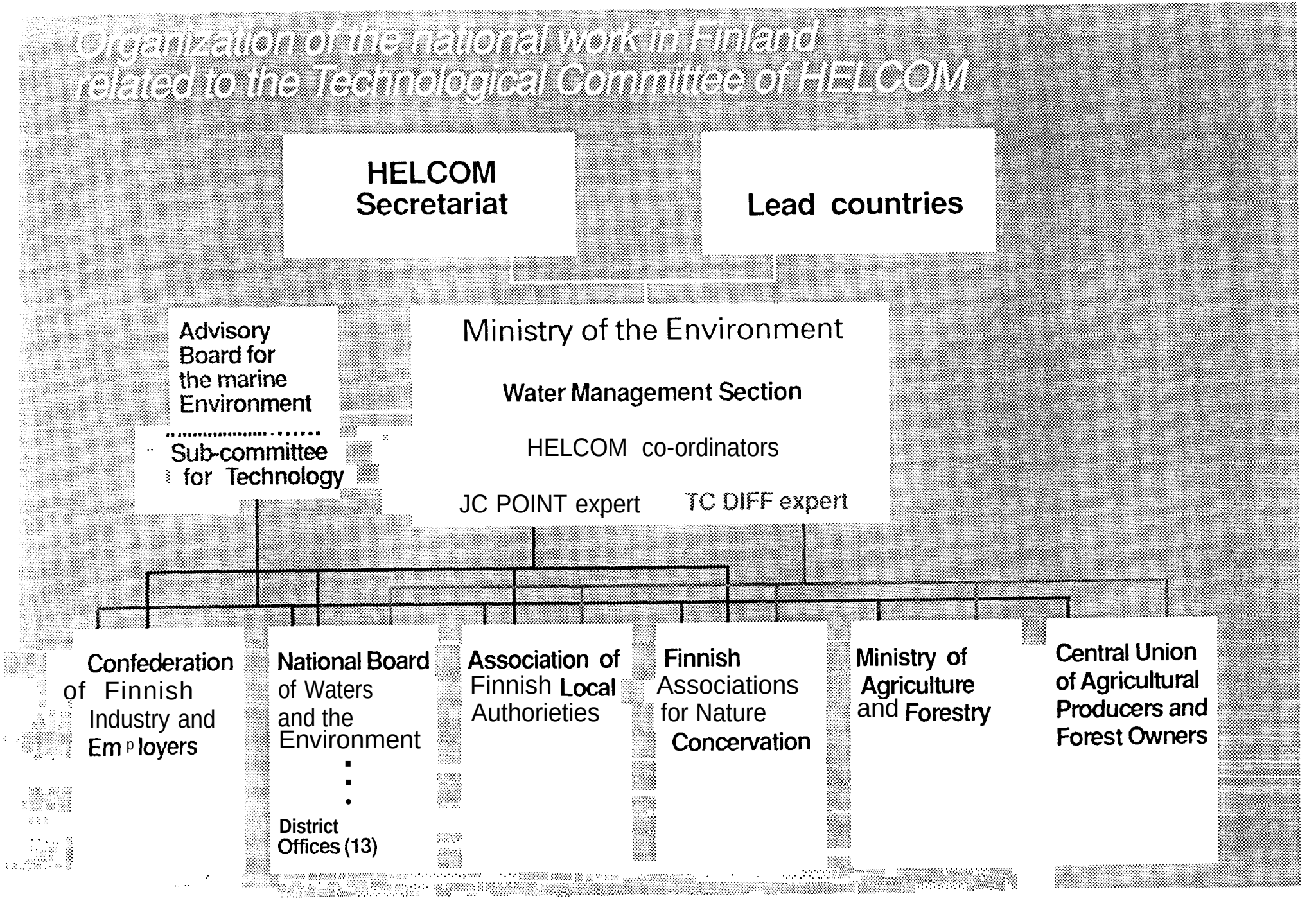
- Four Sub-Committees
  (in accordance with the structure of the Helsinki Commission)

  - Research
  - Technology
  - Navigation
  - Combatting Matters

The Sub-Committees consider detailed questions and matters
at issue in international **Committees and Working Groups**

Chairmen, Vice-chairmen, and Secretaries
from the authorities mainly responsible for the preparation
of the subject matter in question

Members represent all parties involved
with the mandate of the Sub-Committee in question


Organization of the national work in Finland
related to the Technological Committee of HELCOM
HELCOM Secretariat
Lead countries
Advisory Board for the marine Environment
Sub-committee for Technology
Ministry of the Environment
Water Management Section
HELCOM co-ordinators
JC POINT expert
TC DIFF expert
Confederation of Finnish Industry and Employers
National Board of Waters and the Environment
District Offices (13)
Association of Finnish Local Authorieties
Finnish Associations for Nature Concervation
Ministry of Agriculture and Forestry
Central Union of Agricultural Producers and Forest Owners

Annual cycle of national preparation of HELCOM/TC matters in Finland

APPENDIX 4

		Ministry of the Environment/ water management section	Advisory Board for the Marine Environment/ Sub-Committee for technology
March-April			Preparation of views and comments for TC POINT and TC DIFF
		Sending of the comments to HELCOM and/or to the lead-countries	
May-June	TC POINT]		
	TC DIFF		
		Distribution of the outcome for comments	
July-September			Finalization of the views and comments for TC
		Sending of the comments to HELCOM and/or to the lead-countries	
October-November	TC		
		Distribution of the outcome, inter alia, draft HELCOM Recommendations, for official comments	
December-January			Consideration of the comments received
		Decision of position to be taken at HELCOM-meeting and sending of possible written comments to HELCOM and/or to the lead countries	
February	HELCOM		
		Distribution of the outcome for information and for action, as appropriate	

The short review of the Polish institutions for water protection.

The Republic of Poland is situated in the Central Europe. Its population is about 38 million, 62% in towns and cities. Poland's water resources are scarce.

Presently, there is a process underway of accommodating an existing structure of managing water resources in accordance with environmental guidelines of the country.

This process takes into account both requirements of international standards and modern methods of environmental protection as well as expertise in making decision procedures and institutional solutions traditionally examined in Poland.

It should be underlined that this process is, in reality, shifting from economy to another and using all positive experiences with simultaneous modernization of used procedures.

This activity proceeds in the following ways:

- accommodating legislative procedures to increasingly present mechanisms of market economy;
- allowing for more and more decision making at lower levels;
- making financial mechanisms which would allow for means necessary in proecological restructuring of industry, agriculture as well as diminishing conflicts in urban ares.

We have gained a number of considerable achievements allowing for a concrete progress and, simultaneously, we found number of mistakes arising from, inter alia, the fact that legislative and institutional changes are not up with political decisions. It is a document entitled "National Environmental Policy" adopted by the Parliament which is the basis for legislation, organizational structure and financial procedures as well.

Within the Polish government the central organ on water protection - which performs governmental water policy is the Minister of Environmental Protection, Natural Resources and Forestry.

A number of important environmental problems fall within the competence of other ministries. In particular, occupational safety is dealt with the Ministry of Labor and Social Affairs. Municipal water supply and sewage collection systems, as well spatial planning and development - by the Ministry of Construction and Municipal Administration; part of ambient quality, and entire food and drug monitoring - by the Ministry of Health; agricultural issues - by Ministry of Agriculture and Food Management, and regulation concerning industry - by the Ministry of Industry. The latter is also responsible for the overall development of extractive industries including coal mines (both deep and opened cast). this division of responsibilities is occasionally a source of frictions, and competence disputes.

Water and air pollution permits, as well as permits for waste disposal and water abstractions are issued by respective regional administrators. They also collect pollution fees and water abstraction charges.

There are several state environmental agencies which operate outside the regular ministry structures even though they report to the Minister of Environment. These are:

State Environmental Protection Inspectorate, the agency responsible for enforcement of environmental regulations, and most of environmental monitoring;

State Forest administration, the state-owned concern responsible for commercially managing state forests and for inspecting privately owned forests to enforce relevant regulations;

- Geological Concessions Office, a small administration in charge of granting concessions and negotiating fees;
- National Fund for Environment Protection and Water Resources Management, an institution responsible for recirculation a portion of "environmental" and geological fees;

– 7 Directorates of Water Resource Administration which were established covering the whole territory of Poland, whose mission is to maintain river courses, coordinate anti-flood activities, and collect small river transport fees,

Local organs of governmental administration in the same field are:

– governors, who realize tasks from the water economy including water quality protection through the Division of Environmental Protection;

– heads of local districts who support activities of province structures and directly support local governmental activities;

– state environmental Protection Inspectors and Province Environmental Protection Inspectorate.

Present principles of protection and management of water resources are determined by the Water Act of 24th October, 1974 with many later amendments.

The sustainable Water Sector Development Policy is based on the following principles:

– decentralization of management of water resources by implementation of the River Basin Management System;

– reduction of allowable concentrations of pollutants deposited into the surface and ground water;

– introduction of progressively growing charges for waste disposal;

– strengthening of economic instruments in order to enforce minimization of water losses and increased recirculation in water use for the industry and energy production.

The new Water Law Act which was considered by commissions of Parliament, after adoption , will replace the Act of 1974. The new act will codify changes in water management administration and legalize the newly created Regional Water Development Authorities. This act will determine also the role and functions of the Regional Water Authorities and their tasks.

The main tasks are:

-accumulating funds from fees for "specific water use" in river basin or its part and expanding these funds in the same basin to satisfy definite needs of water economy;

– coordination of profiting from river basin's resources, set periodically by Minister of Environmental Protection, Natural Resources and Forestry. These conditions will be the base for administrative decision (water-legal permissions).

The project of the new water Law act says about Regional Water Councils. These Councils will be composed equally by three groups of people which represent: the government administration, local self-government entities and users of water.

The Water Councils will be permitted to state:

– programmes of developing the water economy of each of seven river basins;

– the regional fees for "specific water use" higher than the rate states by the Government for the whole country. They will be the base for regional system of financing the water economy;

– the main directions of spending funds accumulated by the Regional Water Development Authority.

Undertakings aimed at protecting waters against pollution are being harmonized with the national and regional programmes.

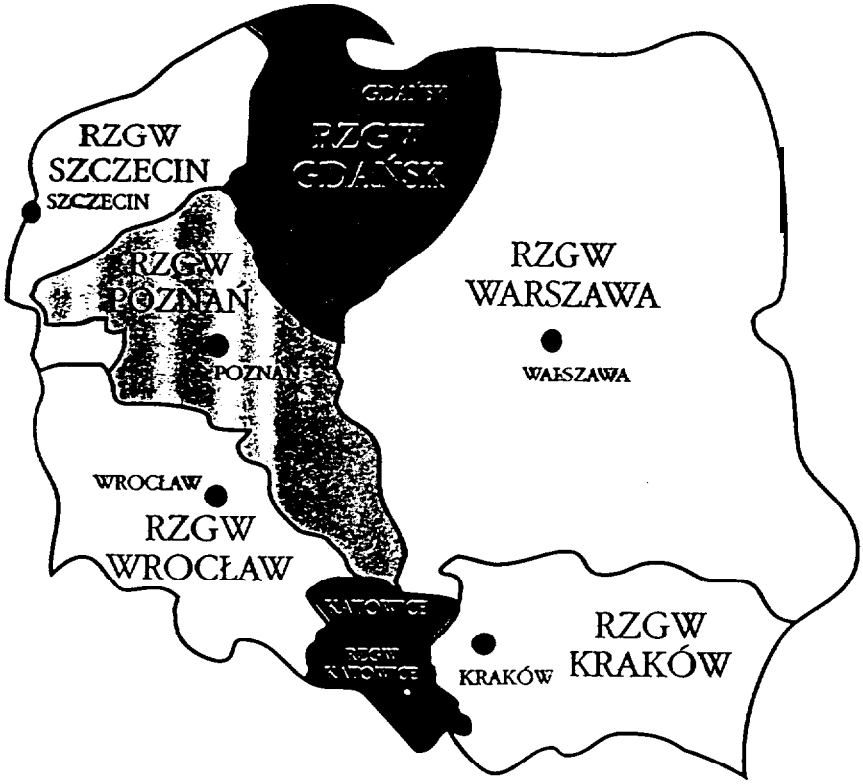
Remodeling of industry and modernization of technological processes with respect to the water consumption and contaminant loadings are the basis of these programmes.

The rate of implementation of the water economy schemes including water protection and duration of particular investment circles are determined by Poland's economic situation.

Expenditures for water protection reached level of 3,778 trillion zlotys in 1991 what was a 0.6% of GNP.

Recent years have brought a substantial revival of Poland's contacts with external parties. This is relevant in particular to the wider opening towards the initiatives of European countries. According to calculations carried out for the year 1991, external aid did not exceed 6% of the total funds absorbed by the environmental sector during this year.

REGIONAL WATER DEVELOPMENT AUTHORITY



STATENS NATURVÅRDSVERK
Swedish Environmental Protection Agency

HELCOM Seminar for Experts from Estonia,Latvia,Lithuania and Russia on the implementation of HELCOM arrangements, other international instruments and related matters

Riga,Latvia
30 August-3 September 1993

Agenda item: **Practical organization of national work within TC**

In Sweden the National Swedish Environmental Protection Agency under the Ministry of the Environment and Natural Resources, is the governmental agency responsible for the execution of task given by the HELCOM TC.

Within the Agency the secretarial function is administered by our International Secretariat. This Secretariat is also, among other things, responsible for the keeping of archives for all documentation resulting from the work under marine conventions. Further, the Secretariat forwards, without any delay, all documentation received from the HELCOM Secretariat to relevant people/organizations within and outside the Agency.

All work on national basis, to fulfil decisions taken by TC, is directed and coordinated by its Swedish chairman, me, ms Ulla-Britta Fallenius, Director for the Agencys Department for Environmental Monitoring and Supervision.

Prior to every meeting with TC and its sub-groups TC Diff, TC Point and TC Polo, the Secretariat calls to a preparatory meeting, where every item on the agenda to the meeting to come, is discussed from a technical and policy point of view. Normally these meetings are called only a few days up to a week ahead of the TC or sub-group meeting. If there is a need, external experts are invited for consultations, but normally such discussions have been held well in advance of the preparatory meetings. At the time of a preparatory meeting, any suggested or forced national standpoint has already been established within our Agency; or when an agenda item involves a policy statement of any kind, it has already been confirmed by our Ministry. These meetings, thus, have more a character of a briefing of our delegates to the TC and sub-groups meetings.

Following every international meeting, normally within fourteen days, the Secretariat invites to a follow-up meeting when our experts are informed by delegates about decisions taken and tasks given to signatory states. At these meetings one resposibility of the head of delegation for the TC meeting to be reported is, to present a list of follow-up actions, where every action requested by TC/sub-groups is assigned to an expert within or outside our Agency. The assigned expert reports directly to the HELCOM Secretariat/Signatory State or lead-country in question, with a copy to the Secretariat at our Agency. When necessary, our Secretariat sends a reminder to any expert not reporting in due time.

The chairman of TC, chairs all national meetings, also on sub-group levels.

Our experience from the institutionalized system described above is, that this way of preparing our experts and to keep them informed, make them very apt to act on behalf of our Agency in the decision-making process, and give them a basis also to act in questions outside their normal area of competence and responsibility. This later fact is of significance, as we for reasons of increasing costs have to limit the number of delegates travelling to meetings. We have also found it recommendable to allow our experts, to greatest possible extent, to follow the international work on a continuous basis, i.e. the same experts to the same meetings.

ORGANIZATION OF THE NATIONAL SWEDISH WORK WITHIN TC

The Ministry of the Environment and Natural Resources

- delegates responsibility to execute HELCOM-tasks to

The Swedish Environmental Protection Agency

- has appointed the Director for the Department for Environmental Monitoring and Supervision, as the national chief executive officer for **EC/TC**

- has appointed experts to **EC/TC** sub-groups

- has offered the services of its International Secretariat for national administration of the marine conventions and for support to our experts

The International Secretariat of the Agency

- acts as national focal **points to** the secretariats of the marine conventions

- keeps up-dated archives. of all documentation distributed from the secretariats of marine conventions and offers library services for these documents

- calls to national preparatory meetings

- calls to national follow-up meetings

- supervises nationally that “dead-lines” for international reporting are met

- etc.

HELCOM SEMINAR
for Experts from Estonia, Latvia, Lithuania and Russia
on the implementation of HELCOM arrangements,
other international instruments and related matters

Riga, Latvia

30 August - 3 September 1993

Main lectures in the field of the Combatting Committee (CC)

THE INTERNATIONAL CONVENTIONS ON COMPENSATION FOR OIL POLLUTION DAMAGE

Brief explanatory note prepared by
the Secretariat of the IOPC Fund

August 1993

1 Introduction

1.1 The international regime for compensation of victims of oil pollution damage is based on two international conventions adopted under the auspices of the International Maritime Organization (IMO), namely the 1969 Convention on Civil Liability for Oil Pollution Damage (Civil Liability Convention) and the 1971 Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (Fund Convention).

1.2 The Civil Liability Convention establishes an international regime of liability for owners of laden tankers based on the principle of strict liability and provides a system of compulsory insurance. It was generally recognised, however, that the regime created by that Convention was inadequate, as it might not provide full compensation to victims of oil pollution damage. For this reason the Fund Convention was adopted as a supplementary Convention to the Civil Liability Convention. The purpose of the Fund Convention is to provide compensation to any person suffering oil pollution damage if that person is unable to obtain full and adequate compensation under the Civil Liability Convention. The International Oil Pollution Compensation Fund (IOPC Fund) which is an inter-governmental organisation was set up under the Fund Convention in order to administer the regime of compensation created by that Convention.

1.3 From a substantive point of view, the Fund Convention is based, to a large extent. on the Civil Liability Convention. For this reason, a State cannot become Party to the Fund Convention without becoming Party to the Civil Liability Convention.

1.4 In order to become Party to either of these Conventions, a State must deposit the usual instrument of ratification, accession or approval with the Secretary-General of IMO. Before doing so, the Government must have ensured that the Conventions are implemented into the national law of the State concerned. The Government must also ensure that the courts of that State are competent to hear cases under the Conventions.

1.5 The two Conventions give together good financial protection in the event of a major oil pollution incident. It is submitted, therefore, that a State should become Party to both Conventions at the same time.

2 The Civil Liability Convention and the Fund Convention

2.1 Under the Civil Liability Convention. the owner of a tanker has – except in a very limited number of cases – strict liability for pollution damage caused as a result of a spill of persistent oil from his ship. He is normally entitled, however, to limit his liability to an amount of 133 Special Drawing Rights (SDR) (US $186) for each ton of the ship's tonnage, with a maximum of 14 million SDR (US $19.6 million)"'. The shipowner must have insurance covering his liability.

2.2 In order to be able to limit his liability, the shipowner must set up a limitation fund with a court or other competent authority in the State where the damage occurred, either by depositing the limitation amount or by producing a guarantee for that amount.

2.3 In many incidents, the amount representing the limit of the owner's liability is not sufficient to cover the whole pollution damage. in some cases, the shipowner may be exonerated from liability. The Fund Convention was elaborated with the aim of providing supplementary compensation for pollution damage.

2.4 If victims of pollution damage are not able to obtain adequate compensation from the owner, the IOPC Fund will pay them compensation up to 60 million SDR (US $83.8 million) per incident, including the amount of compensation paid by the shipowner (or his insurer). The IOPC Fund also indemnifies the owner – with some exceptions – for a part of his liability under the Civil Liability Convention.

2.5 The IOPC Fund has an Assembly, an Executive Committee and a Secretariat headed by a Director. The Assembly consists of all Member States (at present 56). whilst the Executive Committee is composed of 15 Member States elected by the Assembly. The Secretariat has nine staff members. The IOPC Fund has its headquarters in London in the IMO building.

2.6 A list of the present IOPC Fund's Member States is attached.

2.7 A Diplomatic Conference held in 1984 adopted two Protocols amending the Civil Liability Convention and the Fund Convention. The Protocols provide for higher limits of compensation and a wider scope of application than the Conventions in their original versions. However, it is unlikely that these Protocols will come into force in the foreseeable future since the entry into force conditions will not be fulfilled. For this reason, a Diplomatic Conference was held in November 1992 to adopt two new Protocols, containing the same substantive provisions as the 1984 Protocols but lower entry into force requirements, so as to ensure the rapid entry into force of the new Protocols and thereby preserving the viability of the system in the future.

3 Contributions to the IOPC Fund

Basis of *Contributions*

3.1 The payments of compensation as well as the administrative expenses of the IOPC Fund are financed by contributions levied on any person who has received crude oil and heavy fuel oil (contributing oil) after sea transport. The contributions to the IOPC Fund are based on the quantities of contributing oil carried by sea which are received in ports or terminal installations in the territory of the State concerned. Contributing oil is defined in Article 1:3 of the Fund Convention as crude oil and heavy fuel oil (more closely defined in the text of that paragraph).

<1> The amounts specified in the Civil Liability Convention and the Fund Convention were originally expressed in (gold) francs (Poincaré francs). This was changed by the 1976 Protocols to the Conventions under which the amounts in the Conventions are expressed in the Special Drawing Rights (SDR) of the International Monetary Fund. The value expressed in SDR is converted into national currency by referring to its market exchange rate. The amounts given in dollars in this note have been calculated on the basis of the rate of exchange at 28 June 1993 ($1.39701 = 1 SDR).

3.2 **Contributing oil is counted** for contribution purposes each time it is received at ports or **terminal installations** in a Fund Member State after carriage by sea. The term received refers to receipt into tankage or storage immediately after carriage by sea. The place of loading is irrelevant in this context: the oil may be imported from abroad. carried from another port in the same State or transported by ship from an off-shore production rig. Also, oil received for transshipment to another port or received for further transport by pipeline is considered as being received for contribution purposes.

3.3 A Member State is required to communicate every year to the Director of the IOPC Fund the name and address of any person in that State who is liable to contribute to the IOPC Fund, as **well as the quantity of contributing oil received** by any such person. This applies whether the receiver of oil is a Government authority, a State-owned company or a private company. Except in the case of associated persons (subsidiaries and commonly controlled entities), only persons having received more than 150 000 tonnes of contributing oil in the relevant year should be reported.

3.4 If a State **receives** no (or only **a very** small quantity of) **contributing oil, it would therefore be entitled to protection under the Fund Convention at no cost.**

Payment *of Contributions*

3.5 There are initial contributions and annual contributions.

3.6 Initial contributions are payable by the individual contributors when a State becomes a Member of the IOPC Fund. The level of initial contributions has been fixed once and for all by the IOPC Fund Assembly (see paragraph 3.8 below).

3.7 The levy of annual contributions is decided each year by the Assembly at its ordinary session, which is normally held in October. This decision is based on estimates made by the Director of the anticipated payments of compensation to be made by the IOPC Fund during the coming calendar year and of the administrative expenses for that year. Each contributor will pay a specified amount per tonne of contributing oil received. Immediately after the Assembly's decision, the IOPC Fund Secretariat issues an invoice to each contributor. Unless otherwise decided by the Assembly, annual contributions are due on 1 February of the year following that in which the Assembly decides to levy contributions.

3.8 The contributions are payable by the individual contributors directly to the IOPC Fund. A State is not responsible for the contributions levied on contributors in that State, unless it has voluntarily accepted such responsibility. The State shall communicate every year to the IOPC Fund the name and address of any person in that State who is liable to contribute, as well as the quantity of contributing oil received by any such person.

Level *of* Contributions

3.9 The level of initial contributions was fixed by the Assembly at its 1 st session at 0.04718 (gold) francs per tonne of contributing oil, which corresponds to 0.003145 Special Drawing Rights (SDR) per tonne, or, converted at the rate of exchange on 28 June 1993. to £0.0029543 per tonne (see table below).

3.10 The level of annual contributions depends on the payments to be made by the IOPC Fund and consequently varies from one year to another. It is not possible, of course, to make any predictions of the level of contributions in the future. Nevertheless, the records of the contributions during previous years may give some idea of the financial implications for contributors. The total contributions levied during the period 1978 – 1992 are set out in the following table. The table also shows the amounts that would have been paid by a person who received a total quantity of one million tonnes of contributing oil in the relevant years (extreme right hand column).

	Total Contribution £	Contribution per Tonne f	Contribution for 1 million Tonnes f
Initial Contributions		0.0029543	2 954
Annual Contributions			
1979	750 000	0.0008455	845
1980	10 000 000	0.0126100	12 610
1981	500 000	0.0005690	569
1982	860 000	0.0010357	1 036
1983	24 106 000	0.0260786	26 079
1984	0	0.0000000	0
1985	1500 000	0.0018306	1 831
1986	1 800 000	0.0023360	2 336
1987	1 200 000	0.0015347	1 535
1988	2 990 000	0.0037599	3 760
1989	4 800 000	0.0060256	6 026
1990	500 000	0.0005563	556
1991	26 700 000	0.0287013	28 701
1992	10 950 000	0.0116210	11 621

It should be noted that of the contribution levied in 1983 an amount of f13.9 million was later repaid to the contributors.

4 Advantaaes of Membership of the IOPC Fund

4.1 The advantages for a State of being Member of the IOPC Fund can be summarised as follows. If a pollution incident occurs involving a laden tanker, a total amount of US $83.8 million is available to compensate victims, eg the Government or other authorities which have incurred clean-up costs or costs for preventing or minimising pollution damage, and private individuals who have suffered damage, eg fishermen whose boats and nets have been polluted or who suffer loss of income as a result of the pollution, or hoteliers at a seaside resort whose income is reduced. This is independent of the flag of the tanker, the ownership of the oil or the place where the incident occurred, provided that the damage is suffered within the territory, including the territorial sea, of a Member State.

4.2 In comparison with the voluntary industry schemes, TOVALOP and CRISTAL. the following advantages of the system established by the Conventions should be pointed out. Under the Conventions, the national courts of the country where the damage is caused are the final arbiters of any dispute. The Conventions contribute to the unification of law in this field (cf Article 235 of the United Nations Convention on the Law of the Sea). By its decisions in respect of various incidents, the IOPC Fund contributes to the development of international law, thereby facilitating the harmonisation of law between Member States. The major decisions are taken by the Assembly and the Executive Committee, composed of representatives-of Member States, and Member Governments can thus influence the development of law within the IOPC Fund, which is not the case in respect of the voluntary schemes. Finally, a system based on conventions forming part of the national law of Contracting States gives a much higher degree of stability than voluntary schemes.

IOPC Fund Member States

(as at 1 August 1993)

Algeria
Bahamas
Benin
Brunei Darussalam
Cameroon
Canada
Côte d'Ivoire
Croatia
Cyprus
Denmark
Djibouti
Estonia
Federal Republic of Yugoslavia (Serbia and Montenegro)
Fiji
Finland
France
Gabon
Gambia
Germany
Ghana
Greece
Iceland
India
Indonesia
Ireland
Italy
Japan
Kenya
Kuwait
Liberia
Maldives
Malta
Monaco
Morocco
Netherlands
Nigeria
Norway
Oman
Papua New Guinea
Poland
Portugal
Qatar
Republic of Korea
Russian Federation
Seychelles
Spain
Sri Lanka
Slovenia
Sweden
Syrian Arab Republic
Tunisia
Tuvalu
United Arab Emirates
United Kingdom
Vanuatu
Venezuela

THE INTERNATIONAL CONVENTIONS ON LIABILITY AND COMPENSATION FOR OIL POLLUTION DAMAGE; PRESENT AND FUTURE

Mrs Sally Broadley

Claims Officer

international Oil Pollution Compensation Fund

United Kingdom

ABSTRACT:

Liability and compensation for pollution damage caused by oil spills from laden tankers is governed by two international Conventions: the 1969 Civil Liability Convention and the 1971 Fund Convention, The Civil Liability Convention establishes a system of strict liability for tanker owners and introduces compulsory liability insurance. The Fund Convention creates a system of supplementary compensation administered by an intergovernmental organisation, the International Oil Pollution Compensation Fund (IOPC Fund), which at present has 56 Member States. The IOPC Fund pays compensation to victims of oil pollution in Member States when the compensation from the shipowner and the insurer is insufficient.

The IOPC Fund co-operates closely with the P &I Clubs, employing experienced experts. Over the years, the IOPC Fund has been involved in 66 incidents and has paid US$92 million to victims. Only three of these incidents have been taken to court, whereas in all other cases claims have been settled out of court. The IOPC Fund has developed a policy on the admissibility of claims covering clean-up costs, preventive measures, damage to property and economic loss.

* * *

THE INTERNATIONAL CONVENTIONS ON LIABILITY AND COMPENSATION FOR OIL POLLUTION DAMAGE
- Present and Future -

1 INTRODUCTION

The TORREY CANYON oil spill in 1967 caused unprecedented pollution damage off the English coast. It made the world aware of the need for international regimes of liability and compensation for pollution damage caused by spills of oil from tankers. Following the TORREY CANYON disaster, the International Maritime Organization (IMO) convened a Diplomatic Conference in Brussels in 1969, which adopted the International Convention on Civil Liability for Oil Pollution Damage (Civil Liability Convention, CLC). This Convention lays down the principle of strict liability for shipowners and provides for a system of compulsory insurance.

The 1969 Conference noted, however, that the Civil Liability Convention regime might not provide full compensation to victims of pollution damage and recognised the need for a scheme providing supplementary compensation. After further deliberations within IMO. a Diplomatic Conference was convened in Brussels in 1971. This Conference adopted the International Convention on the Establishment of an International Fund for Compensation for Oil Pollution Damage (Fund Convention). The Fund Convention set up an international organisation, the International Oil Pollution Compensation Fund (IOPC Fund), to administer the system of compensation created by that Convention.

The Civil Liability Convention entered into force in 1975 and the Fund Convention entered into force in 1978.

The International Oil Pollution Compensation Fund (IOPC Fund) was established in October 1978. It is the only worldwide inter-governmental organisation which pays compensation to victims who have suffered pollution damage. It also relieves the shipowners of part of the financial burden imposed on them by the Civil Liability Convention.

As at 1 June 1993, the Civil Liability Convention has 79 Contracting States, and the Fund Convention has 56 Contracting States.

Both the Civil Liability Convention and the Fund Convention have been amended by Protocols in 1976. 1984 and 1992. The 1976 amendments are of an essentially formal character. The 1984 and 1992 Protocols, however, fundamentally amend the Conventions. The 1984 and 1992 Protocols, which are not in force, provide for higher limits of compensation and a wider scope of application than the Conventions in their original versions.

2 CIVIL LIABILITY CONVENTION

The Civil Liability Convention is the basic structure on which the regimes of liability and compensation for oil pollution damage from ships is based. The following are the fundamental elements of the Civil Liability Convention regime.

2.1 Scope of application

The Civil Liability Convention applies to oil pollution damage resulting from spills from laden tankers and suffered in the territory (including the territorial sea) of a Contracting State. The only criterion for its applicability is. therefore, where the damage occurred. The flag State of the tanker and the nationality of the shipowner are irrelevant for determining the scope of application of the Civil Liability Convention.

The Civil Liability Convention also applies to measures, wherever they are taken, to prevent or minimise pollution damage in the territory (including the territorial sea) of a Contracting State ("preventive measures").

Damage caused by non-persistent oil is not covered by the Civil Liability Convention. Therefore, spills of gasoline, light diesel oil, kerosene, etc, do not fall within the scope of the Civil Liability Convention.

Only a spill from a tanker which is actually carrying oil in bulk as cargo is covered by the Civil Liability Convention. Spills from a tanker during a ballast voyage are not covered by the Civil Liability Convention, nor is a spill of bunker oil from ships other than tankers.

The Civil Liability Convention applies only to damage caused or measures taken after an incident has occurred in which oil has escaped or been accidentally discharged. The Convention does not apply to "threat removal measures", ie preventive measures which are so successful that there is no actual spill of oil from the tanker involved.

Compensation for oil pollution damage not covered by the Civil Liability Convention, ie damage caused by spills from unladen tankers or from ships other than tankers, costs of threat removal measures and damage caused by non-persistent oil, will be governed by national law.

The Civil Liability Convention (and the Fund Convention) only deal with oil pollution from ships. Pollution resulting from off-shore operations fall outside the scope of the Conventions, and compensation for such pollution damage will be governed by national law.

2.2 Strict liability

The owner of a tanker has strict liability, that is, liability in the absence of fault, for pollution damage caused by oil spilled from the tanker as a result of an incident. The shipowner may be exempted from liability only in a few particular cases, namely:

(a) the damage resulted from an act of war or a grave natural disaster,
(b) the damage was wholly caused by sabotage by a third party, or
(c) the damage was wholly caused by the failure of authorities to maintain navigational aids.

The grounds for exemption are very limited, and the owner will, therefore, be liable for pollution damage in almost all incidents which occur under normal circumstances.

2.3 Limitation of liability

The shipowner is, under certain conditions, entitled to limit his liability to an amount of 133 SDR (US $188) per ton of the ship's tonnage or 14 million SDR (US $19.8 million) whichever is the less <1>. In order to be entitled to limit his liability, the owner must establish a limitation fund by depositing the limitation amount with a court or by furnishing a guarantee for that amount acceptable to the court.

If a claimant proves that the incident occurred as a result of the personal fault ("the actual fault or privity") of the owner, the owner will be deprived of the right to limit his liability.

2.4 Channelling of liability

Claims for pollution damage under the Civil Liability Convention can be made only against the registered owner of the tanker concerned. This does not preclude victims from claiming compensation outside the Civil Liability Convention from persons other than the owner. No claim can, however, be made against the servants or agents of the owner. The owner is entitled to take recourse action against third parties in accordance with national law.

Note <1>

The amounts specified in the Civil Liability Convention and the Fund Convention were originally expressed in (gold) francs (Poincare francs). This was changed by the 1976 Protocols to the Conventions under which the amounts in the Conventions are expressed in the Special Drawing Rights (SDR) of the International Monetary Fund. The value expressed in SDR is converted into national currency by referring to its market exchange rate. The amounts given in dollars in this lecture have been calculated on the basis of the rate of exchange at 11 June 1993 ($1.41666 = 1 SDR).

2.5 Compulsory insurance

The owner of a tanker carrying more than 2 000 tonnes of persistent oil as cargo is obliged to maintain insurance to cover his liability under the Civil Liability Convention. When entering or leaving a port or terminal installation of a State Party to the Civil Liability Convention, a certificate of insurance 'is required also for ships flying the flag of a State which is not Party to the Civil Liability Convention.

2.6 Competence of Courts

Actions for compensation under the Civil Liability Convention may only be brought before the Courts of the Contracting State in the territory or territorial sea of which damage was caused.

3 FUND CONVENTION

The Fund Convention was elaborated as a supplementary convention to the Civil Liability Convention. Only those States which have become Parties to the Civil Liability Convention can become Members of the IOPC Fund. The IOPC Fund has at present 56 Member States <2>.

The main functions of the Fund Convention are to provide supplementary compensation to those who cannot obtain full and adequate compensation for oil pollution damage under the Civil Liability Convention, and to indemnify the owner for a portion of his liability under the Civil Liability Convention,

The IOPC Fund is financed by contributions from persons who receive crude oil and heavy fuel oil in Fund Member States.

3.1 Supplementary compensation

The IOPC Fund pays compensation to any person suffering oil pollution damage in an IOPC Fund Member State if that person is unable to obtain full and adequate compensation under the Civil Liability Convention for one of the following reasons:

(a) No liability for pollution damage arises under the Civil Liability Convention, because the owner can invoke one of the exemptions under that Convention.

(b) The owner is financially incapable of meeting his obligations under the Civil Liability Convention and his insurance is insufficient to satisfy the claims for compensation for pollution damage.

(c) The damage exceeds the owner's liability under the Civil Liability Convention.

Experience has shown that in most cases in the IOPC Fund becomes involved for the third reason. That is, the damage exceeds the shipowner's limit under the Civil Liability Convention.

The IOPC Fund is relieved of its obligation to pay compensation if it proves that the pollution damage resulted from an act of war or if it was caused by a spill from a warship. In addition, the IOPC Fund has no obligation to pay compensation if the claimant cannot prove that the damage resulted from an incident involving one or more laden tankers.

Note <2>

As at 1 June 1993. the Members of the IOPC Fund are: Algeria. Bahamas, Benin, Brunei Darussalam (from 28 December 1992). Cameroon, Canada, Côte d'Ivoire. Croatia, Cyprus, Denmark, Djibouti. Estonia. Fiji. Federal Republic of Yugoslavia (Serbia and Montenegro). Finland, France. Gabon. the Gambia. Federal Republic of Germany. Ghana. Greece. Iceland. India. Indonesia. Ireland. Italy. Japan. Kenya. Kuwait, Liberia, Maldives. Malta. Monaco, Morocco. Netherlands. Nigeria. Norway, Oman, Papua New Guinea, Poland, Portugal, Qatar. Republic of Korea, Russian Federation. Seychelles. Slovenia. Spain, Sri Lanka, Sweden. Syrian Arab Republic, Tunisia, Tuvalu. United Arab Emirates, United Kingdom, Vanuatu. Venezuela.

3.2 Limit of compensation

The maximum amount payable under the Civil Liability Convention and the Fund Convention in respect of any one incident is limited to 900 million (gold) francs, which in the IOPC Fund's view corresponds to 60 million Special Drawing Rights or approximately US$85 million. This amount includes the sum paid by the owner or his insurer under the Civil Liability Convention <3>.

Of the 66 incidents with which the IOPC Fund has dealt so far, only two have given rise to claims in excess of the limit of compensation that applied to the incident, the TANIO incident (France, 1980) and the HAVEN incident (Italy. 1991).

The limits of compensation laid down in the Civil Liability Convention and the Fund Convention were originally expressed in a special unit, the (gold) franc, the so-called Poincaré franc. Under the Civil Liability Convention, the amounts expressed in (gold) francs should be converted into the national currency of the State in which the shipowner's limitation fund is constituted on the basis of the official value of that currency by reference to the franc on the date of the establishment of the limitation fund. By reference, the unit in the Fund Convention is the same as that in the Civil Liability Convention.

The word official was inserted in the text as a result of a proposal made during one of the last sessions of the 1969 Diplomatic Conference. The purpose of the inclusion of this word was to rule out the application of the market value of gold.

In 1976. Protocols were adopted to amend both Conventions. Under the Protocols, the (gold) franc was replaced as the monetary unit by the Special Drawing Right of the International Monetary Fund (SDR). One SDR was then considered equal to 15 (gold) francs. The SDR is to be converted into the national currency of the State in which the shipowner's limitation fund is constituted on the basis of the value of that currency by reference to the SDR on the date of the constitution of the limitation fund.

The 1976 Protocol to the Civil Liability Convention entered into force in 1981, whereas the 1976 Protocol to the Fund Convention has not yet come into force.

In 1978 the IOPC Fund Assembly adopted a Resolution in which it had taken for granted that the conversion of the (gold) franc into national currency should be made on the basis of the Special Drawing Right of the International Monetary Fund.

A legal dispute has arisen following the HAVEN incident. Some claimants have maintained that despite the IOPC Fund Resolution, and as the 1976 Protocols have not entered into force, the amount of compensation payable by the IOPC Fund should be determined by reference to the text of the Convention. As there is no longer an "official" value of gold, the claimants have argued that the free market price of gold should be used to convert the (gold) franc into Italian lire.

The judge of the Court of first instance in Genoa in charge of the limitation proceedings rendered his decision on this issue on 14 March 1992. He held that the maximum amount payable by the IOPC Fund should be calculated by the application of the free market value of gold which gives an amount of Llt 771 397 947 400 ($630 million) (including the amount paid by the shipowner under the Civil Liability Convention), instead of Llt 102 864 000 000 ($85 million), as maintained by the IOPC Fund, calculated on the basis of the SDR. The IOPC Fund has lodged opposition to this decision. The Court has not yet rendered its judgement on this issue.

Nole <3>

The limit was originally 30 million SDR ($42 million). It was increased in stages to 60 million SDR by the IOPC Fund Assembly,

The IOPC Fund will if necessary take the question to the Supreme Court of Cassation. If the decision of the Court of first instance in Genoa were to be confirmed, the maximum amount payable by the IOPC Fund would correspond to over $600 million instead of $85 million. This might in the IOPC Fund's view seriously jeopardize the future of the system of compensation established by the Conventions.

3.3 Indemnification of the shipowner

As regards ships registered in or flying the flag of a State Party to the Fund Convention, the IOPC Fund shall indemnify the shipowner for a part of the aggregate amount of his liability under the Civil Liability Convention. The maximum indemnification payable by the IOPC Fund to the shipowner is 33 SDR (US$47) for each ton of the ship's tonnage for ships up to 83 333 tons: in respect of ships over that tonnage, the indemnification payable for each ton of the ship's tonnage increases until a maximum of 5 667 000 SDR (US$8 million) is reached for ships over 105 000 tons.

The IOPC Fund is relieved of its obligation to indemnify the shipowner if it proves that the damage resulted from the wilful misconduct of the owner himself. The same applies if it proves that, as a result of the personal fault of the owner, the ship did not comply with the requirements laid down in certain international conventions, and that the damage arose because of this non-compliance.

3.4 Organisation of the IOPC Fund

The IOPC Fund consists of an Assembly, an Executive Committee and a Secretariat.

The Assembly, which is composed of representatives of the Governments of all Member States, is the supreme organ governing the IOPC Fund and holds regular sessions once a year. The Executive Committee is elected by the Assembly. It is composed of 15 Member States. Its main function is to approve settlements of claims against the IOPC Fund.

The Secretariat is headed by a Director. At present it has in all nine staff members at its headquarters in London.

3.5 Contributions to the IOPC Fund

The payments of compensation and indemnification as well as the administrative expenses of the IOPC Fund are financed by contributions levied on any person who has received crude oil and heavy fuel oil ("contributing oil") in a quantity exceeding 150 000 tonnes in one calendar year in a Contracting State of the Fund Convention.

Contributing oil is counted for contribution purposes each time it is received at ports or terminal installations in a Fund Member State after carriage by sea. The term "received" refers to receipt into tankage or storage immediately after carriage by sea. The place of loading is irrelevant in this context: the oil may be imported from abroad, carried from another port in the same State or transported by ship from an off-shore production rig. Also oil received for transhipment to another port or received for further transport by pipeline is considered as received for contribution purposes.

A Member State is required to report every year to the IOPC Fund the name and address of any person in that State who is liable to contribute to the IOPC Fund, as well as the quantity of contributing oil received by any such person.

There are initial and annual contributions.

Initial contributions are payable when a State becomes a Member of the IOPC Fund.
Annual contributions are levied to meet the anticipated payments of compensation and indemnification by the IOPC Fund during the coming year and of the administrative expenses for that year. The amount of annual contributions is decided each year by the IOPC Fund Assembly. Every contributor pays a specified amount per tonne of contributing oil received.

After the Assembly's decisions on the levy of annual contributions, the IOPC Fund issues an invoice to each contributor. Unless otherwise decided by the Assembly, annual contributions are due on 1 February of the following year. The contributions are payable by the individual contributors directly to the IOPC Fund. A State is not responsible for the contributions levied in that State, unless it has voluntarily assumed such responsibility.

The level of contributions varies from one year to another, since the payments of compensation will vary. In order to give an idea of the financial implications for contributors, the contributions that were levied during the period 1979 – 1992 are shown in the following table. The table also shows the amount that would have been paid by a person who received one million tonnes of contributing oil every year (extreme right hand column).

	Total Contribution £	Contribution per Tonne	Contribution for 1 million Tonnes £
Initial Contributions		0.0026265	2 626
Annual Contributions			
1979	750 000	0.0008455	845
1980	10 000 000	0.0126100	12 610
1981	500 000	0.0005690.	569
1982	860 000	0.0010357	1 036
1983	24 106 000	0.0260786	26 079
1984	0	0.0000000	0
1985	1 500 000	0.0018306	1 831
1986	1 800 000	0.0023360	2 336
1987	1 200 000	0.0015347	1 535
1988	2 990 000	0.0037599	3 760
1989	4 800 000	0.0060256	6 026
1990	500 000	0.0005563	556
1991	26 700 000	0.0287013	28 701
1992	10 950 000	0.0116210	11 621

An important question is whether the contributors actually fulfil their obligation to pay contributions to the IOPC Fund. When the Fund Convention was adopted in 1971, the concept of an international fund was something new. There was no experience of the functioning of a system of this kind. Fears were expressed that the Fund Secretariat would have difficulties in collecting the money required for compensating victims. These fears have proved to be unjustified. Contributions are generally paid on time, and there is only a negligible amount in arrears.

4 REVISION OF THE CIVIL LIABILITY CONVENTION AND THE FUND CONVENTION

4.1 1984 Protocols

A Diplomatic Conference, held in London in 1984, adopted two Protocols to amend the present Civil Liability Convention and Fund Convention. The Protocols provide for higher limits of compensation and a wider scope of application than the Conventions in their original versions.

4.2 1992 Diplomatic Conference and the 1992 Protocols

In 1991, it was established that it was unlikely that the 1984 Protocols would enter into force, The IOPC Fund examined the future development of the inter-governmental oil pollution liability and compensation system based on the Civil Liability Convention and the Fund Convention. As a result of this an International Conference was held in November 1992 under the auspices of IMO which

adopted draft protocols to modify these Conventions. The proposed new Protocols include the substantive provisions of the 1984 Protocols thereto, but with lower entry-into-force conditions. This ensures early entry into force of the new Protocols, thereby preserving the viability of the compensation system in the future.

As at 15 June 1993, 7 States have signed the 1992 Protocols, indicating that they are preparing the necessary legislation to enable them to ratify the Protocols.

The main amendments adopted by the 1992 Conference are the following.

(a) Higher limits for shipowner's liability

The limits of the shipowner's liability are changed by the introduction of a special liability limit for small vessels and by a substantial increase of the limitation amounts. The new limitation figures are:

(i) for a ship not exceeding 5 000 gross tonnage, 3 million SDR (US $4.2 million):

(ii) for a ship with a tonnage between 5 000 and 140 000 gross tonnage, 3 million SDR plus 420 SDR (US $596) for each additional tonnage;

(iii) for a ship exceeding 140 000 gross tonnage, 59.7 million SDR (US $85 million).

(b) Higher limit of 1992 Fund's compensation

The limit of compensation payable by the IOPC Fund under the 1992 Fund Convention is increased to 135 million SDR (US$192 million), including the compensation payable by the shipowner under the 1992 Civil Liability Convention.

The limitation figure will be increased automatically to 200 million SDR (US $283 million) when there are three Member States of the 1992 Fund whose combined quantity of contributing oil received during a given year in their respective territories exceeds 600 million tonnes.

(c) No indemnification of shipowners

Under the 1992 Fund Convention there is no indemnification payable by the 1992 Fund to the shipowner. The shipowner's liability under the 1992 Civil Liability Convention is, therefore, the net liability to be borne by him or his insurer.

(d) Geographical scope of application

The geographical scope of application of the Conventions is extended to the exclusive economic zone (EEZ), established under the United Nations Convention on the Law of the Sea. With regard to preventive measures, it is reconfirmed that the costs for such measures are covered by the Conventions, wherever the measures are taken.

(e) Spills from unladen tankers

Pollution damage caused by a spill of persistent oil from an unladen tanker is to be compensated under the Civil Liability Convention and the Fund Convention. This is in contrast to the present Conventions.

(f) Pre-spill preventive measures

The expenses incurred for preventive measures are recoverable under the 1992 Conventions even when there was no spill of oil as a result of the incident, provided that there was a grave and imminent danger of pollution damage.

(g) Definition of "pollution damage"

The 1992 Protocol to the Civil Liability Convention contains a new definition of the notion of pollution damage which retains the basic wording of the existing definition but a phrase has been added which clarifies whether and to what extent damage to the environment is covered by the definition. It is provided that compensation for impairment of the environment (other than loss of profit from such impairment) shall be limited to costs of reasonable measures of reinstatement actually undertaken or to be undertaken.

(h) Capping Provision

The Conference decided to include in the 1992 Protocol to the Fund Convention provisions setting a cap on contributions to the IOPC Fund payable by oil receivers in any given State. This cap was set at 27.5% of the total contributions to the IOPC Fund. The capping system will cease to apply when the total quantity of contributing oil received during a calendar year in all Member States of the new Fund set up under the 1992 Protocol exceeds 750 million tonnes, or after five years from the entry into force of the 1992 Protocol to the Fund Convention, whichever is the earlier.

(i) Entry into force

The 1992 Protocol to the Civil Liability Convention will come into force when ratified by ten States, including four States each with not less than one million units of gross tanker tonnage. The 1992 Protocol to the Fund Convention will enter into force when ratified by at least eight States and when the total quantity of contributing oil received during a given calendar year in all the ratifying States is at least 450 million tonnes.

5 CLAIMS AGAINST THE IOPC FUND

5.1 Claims experience

From its establishment in February 1979 to 1 June 1993, the IOPC Fund has been involved in the settlement of claims arising out of 66 incidents. 34 of these incidents have occurred in Japan. 22 incidents, leading in general to much larger claims, took place in European waters, one incident in Algeria, four in Canada, one in Indonesia. two in the Persian Gulf. one in the Caribbean and one in the Republic of Korea. Some of these incidents were settled, however, without any payment being made by the IOPC Fund. The IOPC Fund has paid compensation or indemnification amounting to about US $92 million in relation to the 56 incidents which have been entirely or partially settled.

The case involving the largest payment was the TANIO incident (France, 1980). where the IOPC Fund paid FFr222 million (US$40.6 million) to claimants. In the HAVEN incident, the aggregate amount of the claims greatly exceeds the maximum amount payable under the Civil Liability Convention and the Fund Convention, but so far no payments have been made.

5.2 Claims settlement

The IOPC Fund has established a reputation for quick settlement of claims. Bearing in mind that the IOPC Fund's function is to provide full and adequate compensation for victims of pollution damage as quickly as possible, the Director and his staff are always ready to offer assistance to those who seek information on how to present their claims against the IOPC Fund.

The IOPC Fund can pay compensation to a claimant only to the extent that his claim is justified and meets the criteria laid down in the Fund Convention. To this end, a claimant is required to prove his claim by producing explanatory notes, invoices, receipts and other documents to support the claim. The IOPC Fund has issued a "Claims Manual" which gives basic information on how to present a claim against the IOPC Fund.

In settling claims for pollution damage the IOPC Fund co-operates closely with the shipowner's pollution liability insurer, which in practically all cases is a Protection and Indemnity Association (P & I Club). The investigation and evaluation of damage is carried out jointly by the IOPC Fund and the P & I Club. Surveyors are normally employed jointly by the P & I Club and the IOPC Fund for the survey of the incident and the clean-up operations. In most cases, the staff of the International Tanker Owners Pollution Federation Ltd (ITOPF) is used for surveying purposes.

The surveyors appointed by the IOPC Fund and the P & I Club attend a spill as early as possible. They monitor the clean-up operations and report to the Director of the Fund and to the P & I Club on the manner in which the operations are carried out. They also advise authorities dealing with the spill response on the best methods of preventive measures or clean-up operations, to the extent that such advice is requested or appreciated. The surveyors discuss with the authorities the procedures that have to be observed in order to facilitate the presentation of claims against the P & I Club and the IOPC Fund quickly, and in a meaningful manner (eg accounting of expenses in a systematic way). Finally, the surveyors advise the authorities whether certain measures taken or to be taken may later be regarded by the IOPC Fund as not being "reasonable". This gives the opportunity of discussing the merits of certain measures before they are actually taken and, by that, avoiding later disputes on the question of recovery of the expenses incurred therefor.

The Director is authorised to settle the claims and pay compensation if the aggregate amount to be paid by the IOPC Fund in respect of the incident in question is unlikely to exceed 2.5 million SDR (US $3.5 million). The Director may in any case make final settlement of claims from individuals and small businesses up to a total amount of 0.67 million SDR (US$1 million). For incidents leading to higher claims, the Director needs the approval of the Executive Committee for the settlement of claims.

If agreement has been reached between the IOPC Fund and a claimant as to the majorii of items of a claim, but further investigation is considered necessary with respect to the remaining items, the Director may make payment as regards the agreed items. The IOPC Fund's Internal Regulations also allow the Director, under certain circumstances and within certain limits, to make provisional payment of compensation before a claim can be settled, if this is necessary to mitigate undue financial hardship to victims of pollution incidents. These procedures have the purpose of expediting the payment of compensation.

These factors – the use of experienced surveyors and lawyers, the co-operation with the P & I Clubs and the Director's authority to make relatively high payments without prior approval of the Executive Committee – enable the IOPC Fund to make settlements of claims and payment of compensation in a relatively short period of time. All small and medium sized claims are normally settled within a few months of the claims documents being presented, and agreed claims are normally paid within a month of agreement being reached. Even the large claims have been settled within reasonable periods of time following an incident.

It must be stressed that the time needed for the settlement of claims is almost entirely dependent on the quality of the documentation submitted in support of the claims. In cases where the claims are well documented, it is often possible to reach a settlement within a few months.

Before the entry into force of the Fund Convention, settlement and payment took much longer. For example the TANIO incident, which occurred in France in 1980. was settled and paid by the IOPC Fund in 1984. In the Amoco Cadiz case in 1978, before the entry into force of the Fund Convention, it was only after protracted litigation in the US courts that claimants were paid some 14 years after the incident.

It should be pointed out that the IOPC Fund only becomes involved in the payment of compensation if the aggregate amount of the proven damage arising out of a particular incident exceeds the limitation amount applicable under the Civil Liability Convention (except in the rare cases where the shipowner is exonerated from liability). For this reason, the IOPC Fund cannot make any payments unless it is established that the shipowner's limitation amount will in fact be exceeded.

5.3 **Admissibility** of claims

In order for a claim to be accepted by the IOPC Fund, it has to be proved that the claim is based on a real expense actually incurred, that there was a link between the expense and the incident and that the expense was made for reasonable purposes.

The definition of **"pollution damage"** under the Civil Liability Convention and the Fund Convention is not entirely clear. However, the IOPC Fund has acquired considerable experience with regard to the admissibility of claims. In connection with the settlement of claims it has developed certain principles as regards the meaning of this definition. The Assembly and the Executive Committee have taken a number of important decisions in this regard. These principles have also been developed by the Director in his negotiations with claimants. The settlements made by the Director and the principles upon which these settlements have been based have either been explicitly approved by the Executive Committee, or have been reported to and endorsed by the Committee. It should be noted that the Assembly has expressed the opinion that a uniform interpretation of the definition of "pollution damage" is essential for the functioning of the regime of compensation established by the Civil Liability Convention and the Fund Convention.

The IOPC Fund pays compensation for expenses incurred for clean-up operatlons at sea or on the beach. As for operations at sea, the costs may relate to the deployment of vessels, the salaries of crew, the use of booms and the spraying of dispersants. In respect of on-shore clean-up, the operations may result in costs for personnel, equipment, absorbents etc.

Also costs of **"preventive measures".** ie measures taken to prevent or minimise pollution damage, are compensated by the IOPC Fund. Measures may have to be taken to prevent oil which has escaped from a ship from reaching the coast, eg by placing booms along the coast which is threatened. Dispersants may be used at sea to combat the oil. Costs for such operations are in principle considered as costs of preventive measures. It must be emphasised, however, that the definition only covers costs of "reasonable" measures.

Pollution incidents often result in damage to property: the oil may contaminate fishing boats, fishing gear, yachts, beaches, piers and embankments. The IOPC Fund accepts costs for cleaning polluted property. If the polluted property (eg fishing gear) cannot be cleaned, the IOPC Fund compensates the cost of replacement, subject to deductions for wear and tear. Measures taken to combat an oil spill may cause damage to roads, piers and embankments necessitating repairs, and reasonable costs for such repairs are accepted by the IOPC Fund.

Economic loss suffered by those who depend directly on earnings from coastal or sea-related activities is also recoverable, eg loss of earnings suffered by fishermen and by hoteliers and restaurateurs at seaside resorts.

The IOPC Fund does **not** pay compensation for costs incurred for pre-spill preventlve measures nor for losses which do not result directly from an incident.

An important issue is whether and, if so, to what extent claims **for environmental damage** are admissible. This question has been discussed within the IOPC Fund in view of claims of an abstract nature presented in connection with an incident occurring in the Soviet Union. The claims related to damage to the resources and costs of restoring the polluted water to a clean condition. In 1980 the IOPC Fund Assembly adopted an important Resolution on the admissibility of claims relating to damage to the environment. In the Resolution it is stated that the assessment of compensation "... is not to be made on the basis of an abstract quantification of damage calculated in accordance with theoretical models". In other words, compensation can be granted only if a claimant, who has a legal right to claim under national law. has suffered guantifiable economic loss,

Damage to the marine environment cannot be easily assessed in monetary terms, as the marine environment does not have a direct market value. In recent years models have been elaborated in many countries for the assessment of damage to the marine environment. It is submitted that any assessment of ecological damage to the marine environment in monetary terms would require sweeping assumptions regarding relationships between different components of the environment and economic values. Any calculations of the damage suffered in monetary terms will by necessity be arbitrary. For this reason, it is maintained that it would be inappropriate to admit claims for compensating damage to unexploited natural resources which have no owner.

Another important question in this context is the impact of the 1992 Protocols on the definition of pollution damage. The Protocol to the Civil Liability Convention contains an amended wording of the definition of pollution damage. A proviso was added to the effect that compensation for impairment of the environment (other than loss of profit from such impairment) should be limited to costs of reasonable measures of reinstatement actually undertaken or to be undertaken.

It is obvious that a uniform interpretation of the definition of pollution damage is essential for the functioning of the regime of compensation created by the two Conventions. This is particularly so in respect of the Fund Convention, since under that Convention oil receivers in one Contracting State contribute to the payment of compensation for damage sustained in other Contracting States.

6 CONCLUSIONS

When the Fund Convention was adopted in 1971, the Diplomatic Conference created an innovation in international law. The IOPC Fund is, basically. a mutual insurance company for oil pollution incidents set up by Governments but financed by oil interests. It was impossible to foresee how such **a** body would function.

It is fair to say, in the light of fourteen years of experience, that the system of compensation established by the Civil Liability Convention and the Fund Convention has worked well. This is of course due, to a large extent, to the spirit of co-operation shown by Governments of Member States as well as by shipowners, P & I Clubs and the oil industry.

Looking more particularly at the IOPC Fund itself, it has succeeded in creating procedures for rapid compensation to victims of oil pollution incidents at low cost. It has also contributed to the harmonisation of law and legal practice in the field of compensation for oil pollution damage.

Although the 1992 Protocols to the Conventions will not come into force for a number of years, the regime of compensation established by the Civil Liability Convention and the Fund Convention provides a cover for oil pollution damage which is adequate, except in very rare cases. The two Conventions together provide a cover of US $85 million per incident. There have been only a couple of cases in the world where the aggregate amount of pollution damage exceeded this amount. For this reason, it is likely that practically all incidents in States members of the IOPC Fund will be dealt with under the Conventions for a number of years to come. On the other hand, in States not Party to the Fund Convention, the amount available under the Civil Liability Convention will in many cases not be sufficient to compensate the victims in full.

The Fund Convention has so far been ratified by 56 States. However, according to the information available to the IOPC Fund Secretariat, there are reasons to expect that more States will soon join the IOPC Fund. This continuing expansion of the membership demonstrates that the international community has found the system of compensation created by the Civil Liability Convention and the Fund Convention to be a viable one, providing rapid compensation to victims of oil pollution damage.

International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990 (OPRC 90)

ADOPTED:	30 November 1990, done at London
CONFERENCE:	Conference on International Co-operation on Oil Pollution Preparedness and Response convened by IMO and held in London at its Headquarters from 19 to 30 November 1991 adopted the OPRC Convention and 10 resolutions related thereto.
STATUS:	Signatories: Argentina, Brazil, Côte d'Ivoire, Denmark, Ecuador, Finland, Gambia, Germany, Federal Republic of, Ghana. Greece, Guinea, Iceland, Israel, Italy, Lebanon, Malta, Morocoo, Netherlands, Norway, Philippines, Poland, Senegal, Spain, Uruguay, and Venezuela Ratification/acceptance: Australia, Egypt, France, Nigeria, Seychelles, Sweden, United States, Nigeria
ENTRY INTO FORCE:	12 months after 15 States have ratified, accepted, approved, or acceded to it
DEPOSITARY:	Secretary-General of IMO
PURPOSE:	To protect the marine environment in particular from the consequences of major oil pollution incidents involving in particular ships, offshore units, sea ports and oil handling facilities
OBJECTIVES:	To facilitate international co-operation and mutual assistance in preparing for and responding to a major oil pollution incident and to encourage states to develop and maintain an adequate capability to deal with oil pollution emergencies
APPLICATION:	Preparedness and response issues related to oil pollution emergencies (petroleum in any form including crude oil, fuel oil, sludge, oil refuse and refined products) posing a threat to the marine environment, or to coastline or related interests of states. To be applied to hazardous and noxious substances as appropriate pending revision of Convention to cover such substances

SALIENT FEATURES

International Co-operation and Mutual Assistance	Commitment to co-operate and to render assistance to parties that request assistance to deal with oil pollution incidents subject to: . Capability and availability of relevant resources:

	. Requesting party should reimburse the assisting party for the cost of assistance: . Requesting party may aks the assisting party to waive reimbursement of expenses exceeding the sum compensated or reduce costs or postpone the reimbursement of such costs. Due consideration should be given to the needs of developing countries.
Pollution Reoorting	Obligation to ensure that ships, offshore units, aircraft, seaports and oil handling facilities report oil pollution incidents to nearest coastal state or competent national authority and advise neighbouring states at risk and IMO as appropriate
Oil **Pollution Emergency** Plan	Required for: Oil tankers) Regulation 26, Annex I, ≥150 gross tons) MARPOL 73/78 enters into force Other ships) April 1993, Guidelines for the ≥400 gross tons) Development of Shipboard Oil) Pollution Emergency Plans Any fixed or floating offshore installation or structure engaged in gas or oil exploration, exploitation, production activities or loading or unloading oil Any seaport and oil handling facility that presents a risk of an oil pollution incident
National and regional **preparedness** and **response** caoability	Obligation to establish a national system for responding promptly and effectively to oil pollution incidents which has, as a basic minimum, a national contingency plan, designated national authorities and operational focal points responsible for oil pollution preparedness and response, reporting and handling requests for assistance Each party, within its capabilities either individually or through bilateral or multilateral co-operation, and, as appropriate, in co-operation with the oil and shipping industries, port authorities, and other relevant entities, shall establish: . Minimum level of prepositioned oil spill response equipment, proportionate to the risk involved, and programmes for its use: . Proqramme of exercises for oil pollution response orqanizations and training of relevant personnel:

, Detailed plans and communication capabilities for responding to oil pollution incindents;

. Mechanism or arrangement for co-ordinatinq response to oil pollution incidents with, if appropriate, the capabilities to mobilize the necessary resources.

Technical co-operation and transfer of **technology**

Parties will undertake to provide support for those parties that request technical assistance in training personnel; in ensuring the availability of relevant technology, equipment, and facilities: in facilitating other measures and arrangements to prepare for and respond to oil pollution incidents; and in initiating joint research and development programmes. The parties also undertake to co-operate actively, in the transfer of technology for oil pollution preparedness and response.

Research and development

Co-operation directly or through, inter alia, the IMO to promote the holding of regular international symposia on relevant subjects, including technological advances in ioil pollution response techniques and equipment and in promoting and exchanging of results of research and development programmes in oil pollution preparedness and response, including technologies and techniques for surveillance, containment, recovery, dispersion, clean-up and restoration.

Institutional arrangements and support

IMO designated as responsible for the following functions and activities:

, Information services

- Receive, collate, and disseminate on request the information provided by parties and relevant information provided by other sources:

- Provide assistance in identifying source of provisional financing or costs.

. Education and training

- Promote training in the field of oil pollution preparedness and response:

- Promote the holding of international symposia.

- Technical services

  - Facilitate CO-Operation in research and development;

  - Provide advice to states establishing national or regional response capabilities:

  - Analyse the information provided by parties and relevant information provided by other sources and provide advice or information to States.

- Technical assistance

  - Facilitate the provision of technical assistance to states establishing national or regional response capabilities:

  - Facilitate the provision of technical assistance and advice, upon the request of states faced with major oil pollution incidents.

The IMO's Marine Environment Protection Committee (MEPC) established an OPRC Working Group to representatives from all IMO Members, UN organisations and intergovernmental organizations such as EEC, HELCOM, Oslo/Paris Commissions. and non-governmental organisations in consultative status with IMO. The later category includes, for example, OCIMF, ITOPF, E&P Forum, INTERTANKO, ICS, FOE1 and Greenpeace International. The Working Group reports to the MEPC and meets in conjunction with MEPC meetings held approximately every eight months at IMO Headquarters. The first intersessional meeting is to be held in March 1993. Current work plan includes:

Develop guidelines for the preparation of oil pollution emergency plans for offshore units, sea ports and oil handling facilities:

Update those sections of the Manual on Oil and Chemical Pollution related to marine pollution preparedness and response, the Guidelines on Oil Spill Dispersants and assign priorities accordingly and prepare a new section V - Administrative/Legal Aspects of the Manual on Oil Pollution:

Examine means of enhancing the co-rdination function of IMO when international assistance is needed to respond to an oil pollution incident:

Preparation of operational guidelines and recommendations on the means by which States should give effect to Article 7(3) of the OPRC Convention dealing with facilitation of response to an oil pollution incident:

Promotion of R&D relating to oil polllution preparedness and response:

Develop OPRC model training courses:

- Review existing non-governmental Oil pollution combating equipment stockpiles and their accessibility:

- Consider measures to facilitate the application of the OPRC Convention to hazardous and noxious substances pending the adoption of an instrument to cover these substances:

  Develop an appropriate instrument to expand the scope of the OPRC Convention to apply in whole or in part to pollution incidents by hazardous substances in the light of recommendations of the BCH and CDG Sub-Committees: and

- Recommend ways and means to improve the involvement of industry (oil, shipping, oil spill clean-up) in the implementation of the OPRC Convention.

RIGA

Captain Thomas Fagö September 1993

ORGANISATION OF OIL SPILL RESPONSE AUTHORITIES

1. Introduction

Mr Chairman, dear spill response colleagues, ladies and gentlemen.

My headline "Organisation of spill response authorities" covers a very big task, from how to explain the many different matters, which influence the structure of an authority to how to organize a sea going or a beach cleaning team.

I will try to give some general ideas and afterwards give time for questions and discussions.

The most common question I get when discussing this item is "How will the **best** oil spill response organisation look like"? The answer is very simple, there is no **best** organisation applicable for all authorities working in this field. There are **better** or **worse** solutions.

Let me try to explain that statement a little by mentioning some of the main causes for why there are different solutions.

2. Basic factors

The most basic but also the most diffuse one is culture.

I will not try to explain what constitutes culture and cultural differences but I think we can all agree that there are such differences in the world. Let me try to show you some examples. Of course with this I don't intend to state that one organisation is better than another, only show you that also culture affects the structure of an organisation.

Another very important matter that influences the organisation is the legal system of a country.

We shall not spend much time on this item, but I think it is worthwile to mention the differences between a large federation like the United States and a very strongly centralized small nation.

A central part of the legal system is of course the principles for allocation of responsibilities for oil spill response to e.g. the polluter, the Coast Guard, the Fire Briga de, the Navy or the County Administration to mention some of the solutions on that matter.

When considering legal principles you must also remember the administrative infrastructure of a county in e.g. counties and communities with their legal and economical responsibilities which also have effect on oil spill combatting matters (appendix 1. Sweden).

A third very important cornerstone is: Who has the equipment and who shall pay? He who has the equipment or he who shall pay also wants to take part in the decisiomnaking and the management.

Different countries have also different policies for response to oil spills. A policy could depend on many things e.g. geographical situations, water depth and salinity, weather, ecological vulnerability or participation in bi- or multilateral agreements.

So, to summarize there are sex cornerstones upon which also the organisation of an oil spill response authority has to rest.

- Cultural
- Legal
- Administrative
- Economical
- Geographical and
- Political

Now let me show you some examples of different solutions (Appendix 2).

This compilation was made by the ITOPF (International Tanker Owners Pollution Federation) and shows the different Oil Spill Response Arrangement of the Bonn Agreement countries.

Otherwise, it is very difficult to find something written in general on the organisation of an oil spill combatting authority. The IMO "Manual on Oil Pollution" says very little about that, it only states that there should be some agency or agencies responsible and that the organisation should be large enough, sufficiently funded, and some other general demands.

This is of course, because the IMO knows that the abovestanding cornerstones have different size and configuration in different parts of the world and that every nation has to create its own system.

For a large, federative nation like the United States such a system is very complicated (appendix 3) but for a small, centralized country like Sweden it does not have to be that complicated. But also **there** one can see different levels depending on our legal, administration and economical system (appendix 4).

3. **General recommendations**

However, even if it is up to each nation to decide upon their own system and the structure of the spill response authority there are of course some general recommendations which should be considered when building up the authority.

At first, it is recommendable to give one ministry the main responsibility for the authority.

Secondly, when considering the assignment of the authority it is important to look at the scope of the accident which has to be dealt with. In our case it is not **only** a question of responding to an oil spill. The same accident might also require lifesaving, response to other harmful substances, salvage and firefighting at sea. Thus, it is desireable that the response authority should cover the same scope and that the entire response operation should be conducted by **one** authority and by **one** response center.

However, this is not easy to achieve , but regardless **what** the assignment will be, it has to be clearcut and evident so that the authority, but also other neighbouring authorities understand and accept it. Otherwise there is a risk for interference and competition by other authorities who think they are responsible and want to act.

It is, furthermore, not enough only to give an authority one or more assignments, it is also necessary to state at least some conditions such as maximum size of an oil - or an them-spill to which the authority should be able to respond successfully, and

demands on preparedness and endurance. Those demands must rest on conclusions of the type of threat so that they will be cost-effective, which means **not** to have an expensive organisation prepared to respond to accidents which are most unlikely to happen, but also **not** to have an organisation that can do nothing but still costs money.

Together with assignments and demands on the authority it is also very important to give the authority a satisfactory legal commission to fulfil its assignments.

Such a legal commission could consist of

- commission to use equipment and personnel from other authorities
- commission to order " the man on the street" to serve
- commission to take possession of a building or a habour or e.g. to tell the master of the ship involved in an accident what to **do** or **not** to do.

Of course, there must be a satisfactory correspondence between the means and the goals.

It is also desireable that the spill response authority has sufficient manpower and equipment to respond to minor accidents without involving resources from outside but also to have personnel prepared to conduct personnel and other resources from outside when dealing with a significant accident.

Anyhow, the economical system has to be of the kind that does not delay the operation because of lack of money. One way to do this is to let the responsible ministry pay all initial costs and afterwards claim the polluter or his insurance company or the "Oil Pollution Compensation Fund" for the costs. This is the way we handle these things in Sweden. The system gives us the necessary economical possibilities to act in time but, of course, it takes time afterwards to get the money back, in most cases more than a year.

One of the main problems when responding to accidents at sea is that an effective response organisation is very costly. But accidents, thanks God, do not happen very often. It is not cost-effective to have a powerful organisation doing nothing but training and waiting for an accident. The organisation should also have other missions to fulfil in the meantime. Such missions could e.g. be surveillance at sea, fishery protection, customs duties and participation in environmental research at sea, in other words an typical Coast Guard organisation. In this respect every nation has to find its own solution, and there are almost as many different solutions as there

are nations.

4. Organisation of the response

Let us now, however, discuss how to organize the response.

The organisation of an authority is not the same as the organisation of the response. The response organisation is created from the resources of the authority together with other resources from outside, and lives only from the moment when an accident occurs until the response is finalized.

It has its own structure which in most cases is not similar to the organisation of the responsible authority. The responsible authority may be organized in various ways but the principal structure of the response organisation is quite similar all over the world. (Appendix 5).

On top there is an "Over all coordination" function (alias Response Commander, Rescue Leader, Supreme Commander etc) where the response strategy is decided and where all the efforts are coordinated and all necessary cooperation between all involved is performed.

The second level (OSC) has at least two branches, one for actions on beaches and one for actions at sea. Below the "OSC beach" there are beach cleaning and protection teams. The "OSC sea" has to conduct and coordinate salvage, containment, recovery and firefighting if necessary.

This principal organisation can in most cases not be used to its full extent, because all oil spill accidents are different from each other.

By studying organograrns from various accidents it is however possible to find those levels and functions more or less evidently.

In the "Exxon Valdez" (Appendix 6) incident, it is quite easy to recognize the "overall coordination level" and the OSC level although they have other names ("Oil spill operations manager" resp "Oil spill superindent"). Of course, the organisation of the response to Exxon Valdez spill was more complicated than this organogram indicates, depending on, inter alia, shared and unclear responsibilities.

Also the "Braer incident" (Appendix 7) shows us disagreements when compared with the principal organisation, at least from a geographical point of view.

The MPCU (Marine Pollution Control Unit) was located in London, and the overall command and logistic functions were kept there during the operation.

The "Joint Response Center" was established in Sumburgh Head where the airport is

located and finally a local commander function to cooperate with the Coast Guard and the Fire Brigade. This solution has, in my opinion, geographical and meteorological reasons. (The Shetland Islands are remote and it was a terrible weather which made transports impossible). I think, that some changes would have been necessary if the accident had lasted for a lenghty time. We can, however, nevertheless recognize the principal functions also in this case.

In a third incident "The Aegean Sea" we can also find at least parts of the principal structure, with a "Joint Response Center" (CECOP) and two OSC-functions, (Commission Technical), one for recovery and one for lightering of the tanker, and one subcommission for beaches (playas).

5. Organisation and duties of a response center

In some of the examples above, we have seen what functions could be (in my opinion: has to be) found in a response center. The Swedish model (Appendix 9) is quite simple because the responsibilities, assignement and the legal commission are very clearcut. The Response Commander of the Coast Guard has the full responsibility for a response operation at sea and he has also sufficient commission to take possession of what is needed and available also from outside the Coast Guard.

Of course, he has to cooperate with local authorities regarding beach-protection etc, but all resources at sea are under his command and he has the supreme responsibility for them to be are used in the best way. He is supported by a staff divided into four main functions

- Operation
- Technical
- Personnel and
- Environmental, insurance or other specialists (if needed).

The assignments of the different parts of the staff are presented in Appendix 10 and 11. The corresponding organogram and duties for a U.S. Response Commander's Staff are presented in Appendex 12.

With those examples I have tried to highlight what a response staff should do and how they should be organized. Of course, there is much to say about **how** they should do their job e.g. regarding decisionmaking, management, staff work routines and so on, but that is outside the scope of this lecture.

Conclusions

With this brief overview of the organisation of a spill response authority I have tried to explain the basic factors which influence an organisation and also tried to give some examples of different solutions. Furthermore I have tried to highligt those factors which absolutely should be taken under consideration unregarded the combination of the basic factors.

How all this should be practiced in your countries you will have to find out yourselves.

I hope I have given you some ideas and of course I am ready to assist, if appropiate.

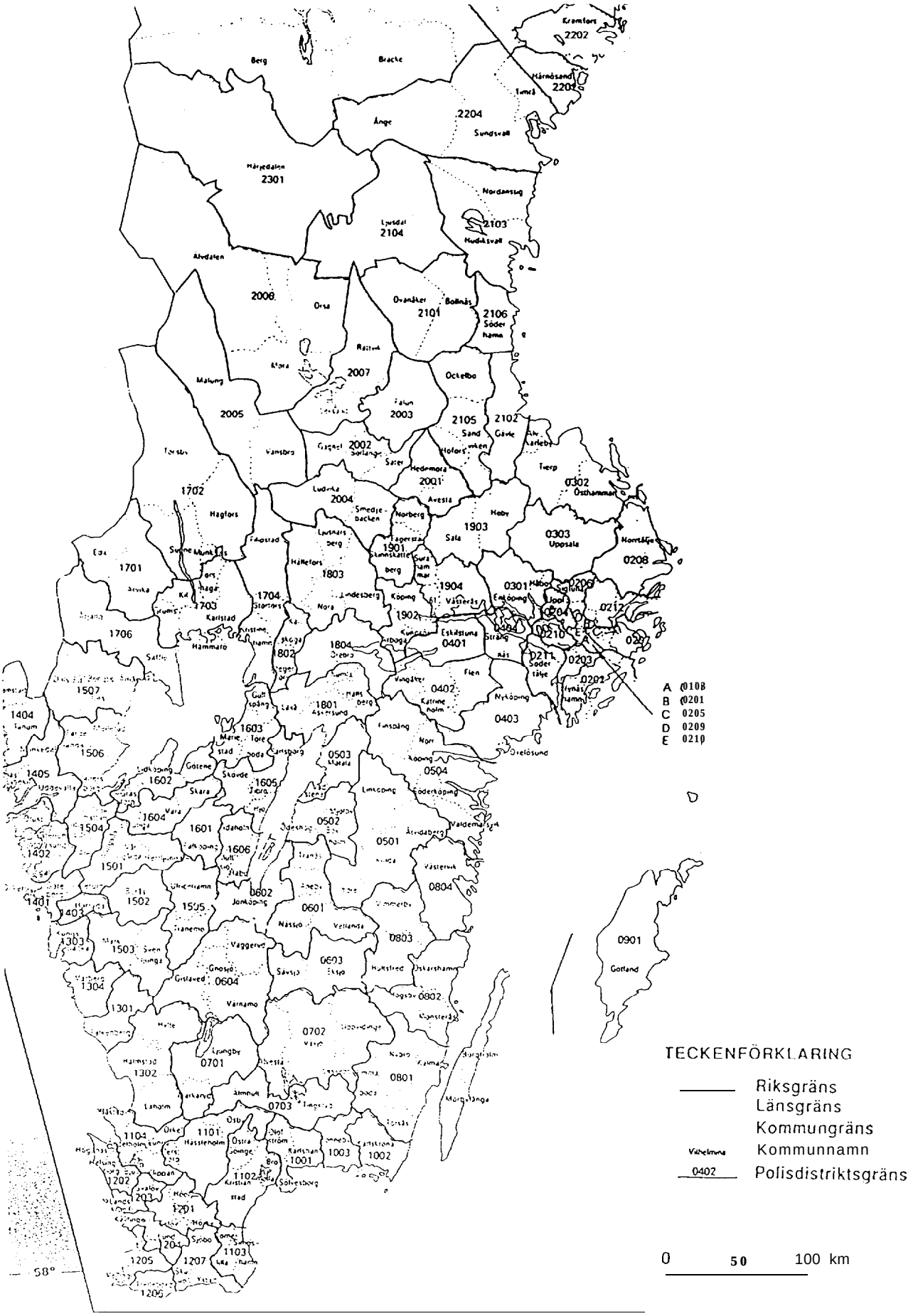

A 0108
B 0201
C 0205
D 0209
E 0210
TECKENFÖRKLARING
Riksgräns
Länsgräns
Kommungräns
Kommunnamn
0402 Polisdistriktsgräns
0 50 100 km
58°

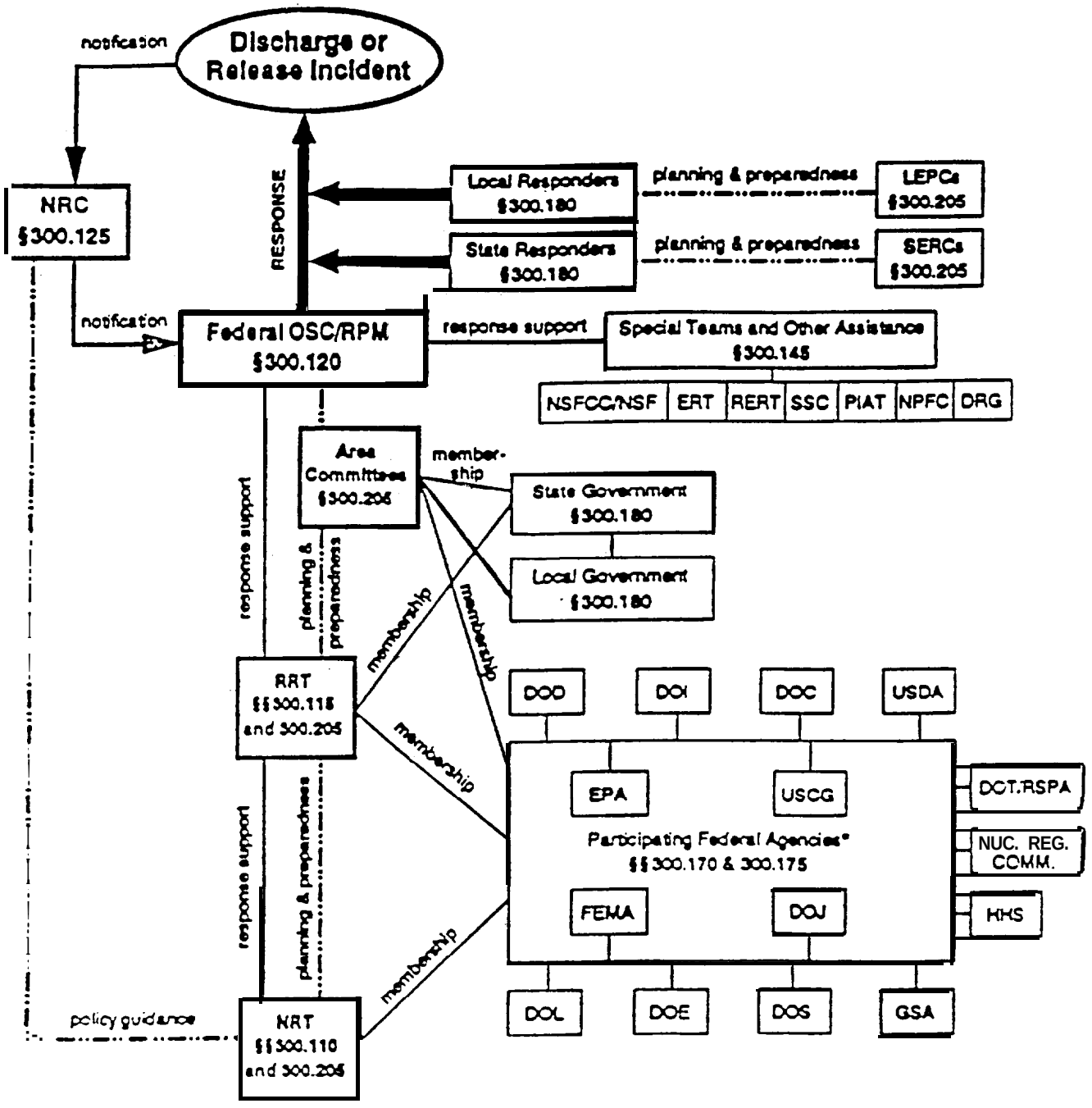
Table 5-1 -Summary of Oil Spill Response Arrangements

Country	Central government departments primarily involved	Responsibility for clean-up: At sea	Responsibility for clean-up: On-shore	Policy for clean-up at sea	Clean-up resources
Belgium	Ministry of Defense Ministry of Interior	Navy	Coastal municipalities: Civil Defense Corps	Dispersants applied from vessels	Limited mainly to dispersants and spraying equipment.
Denmark	Ministry of Environment	National Agency for Environmental Protection	National Agency for Environmental Protection: coastal local authorities: Civil Defense Corps	Containment and recovery almost exclusively although provision for limited use of dispersants	Specialized vessels equipped with booms and skimmers. Also equipment and materials for shore clean-up in district stockpiles.
France	Secretary of State for the Sea Ministry of Defense Ministry of Interior	Maritime Prefect (Navy)	Coastal communes; Commissioner of the Department	Containment and recovery preferred but dispersants used in designated areas	Extensive stocks of specialized equipment and materials in regional stockpiles. Also strike teams and aircraft for dispersant spraying.
Federal Republic of Germany	Ministry of Transport	Federal Board of Waterways and Navigation: coastal states	Coastal states	Containment and recovery preferred but dispersants also used in North Sea	Specialized vessels, booms, skimmers, spraying equipment and dispersants.
Netherlands	Ministry of Transport and Public Works	North Sea Directorate of State Waterways Board	Coastal provincial and municipal states	Containment and recovery exclusively	Specialized vessels, including combined dredgers/oil combating ships equipped with oil recovery equipment. Other vessels for deploying booms. Other equipment held by salvage and private contractors.
Norway	Ministry of Environment	State Pollution Control Authority/Maritime Directorate	Coastal community and intercommunity areas	Containment and recovery almost exclusively, but will consider dispersants if mechanical means are ineffective	Extensive stocks of specialized equipment and trained response teams at 12 regional centers.
Sweden	Ministry of Defense	Coast Guard Service	Municipal fire brigades: provincial authorities	Containment and recovery preferred although dispersant application permissible under certain conditions	Large fleet of vessels equipped for anti-pollution work. Extensive stocks of clean-up equipment in some 30 coastal Sites.
United Kingdom	Department of Transport	Marine Pollution Control Unit of Maritime Directorate	Marine Pollution Control Unit of Maritime Directorate: coastal local authorities	Aerial application of dispersants; containment and recovery where applicable	7 dedicated spraying aircraft, vessel-mounted spray gear and extensive stocks of dispersant. Also containment and recovery equipment and equipment for shore clean-up in 3 regional stockpiles.

SOURCE: J N Archer and I C White, "Organisation to Combat Oil Spills: The Case for Coordination of Government Practice," International Tanker Owners Pollution Federation, p. 5.

Figure 1

National Response System Concepts



Delimitations of responsibilities regarding oil and chemical spill abatement

	AT SEA		ON LAND	
	General preparedness	Field operations	General preparedness	Field operations
GOVERN-MENT LEVEL	Minis try of Defence		Minis try of Defence	
CENTRAL AUTHORITY	Coast Guard Headquarters	Response Commander, Coast Guard Headquarters	National Rescue Services Board	
REGIONAL LEVEL	Regional Coast Guard Office	Response Commander, Regional Coast Guard Office	County Adminis-tration	Command Staff
LOCAL LEVEL		Coast Guard On-Scene Commander	Local Government	Chief of Fire Service

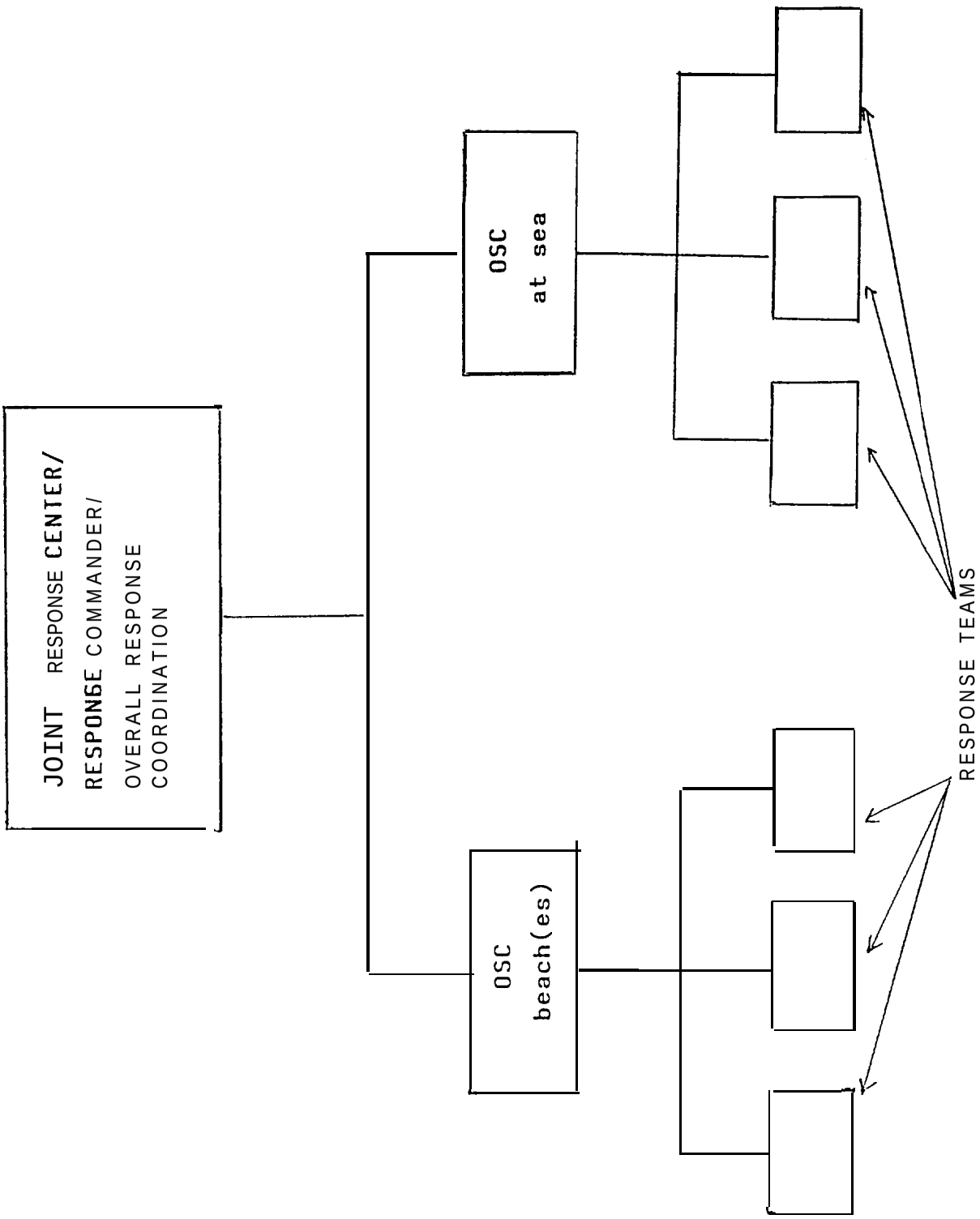
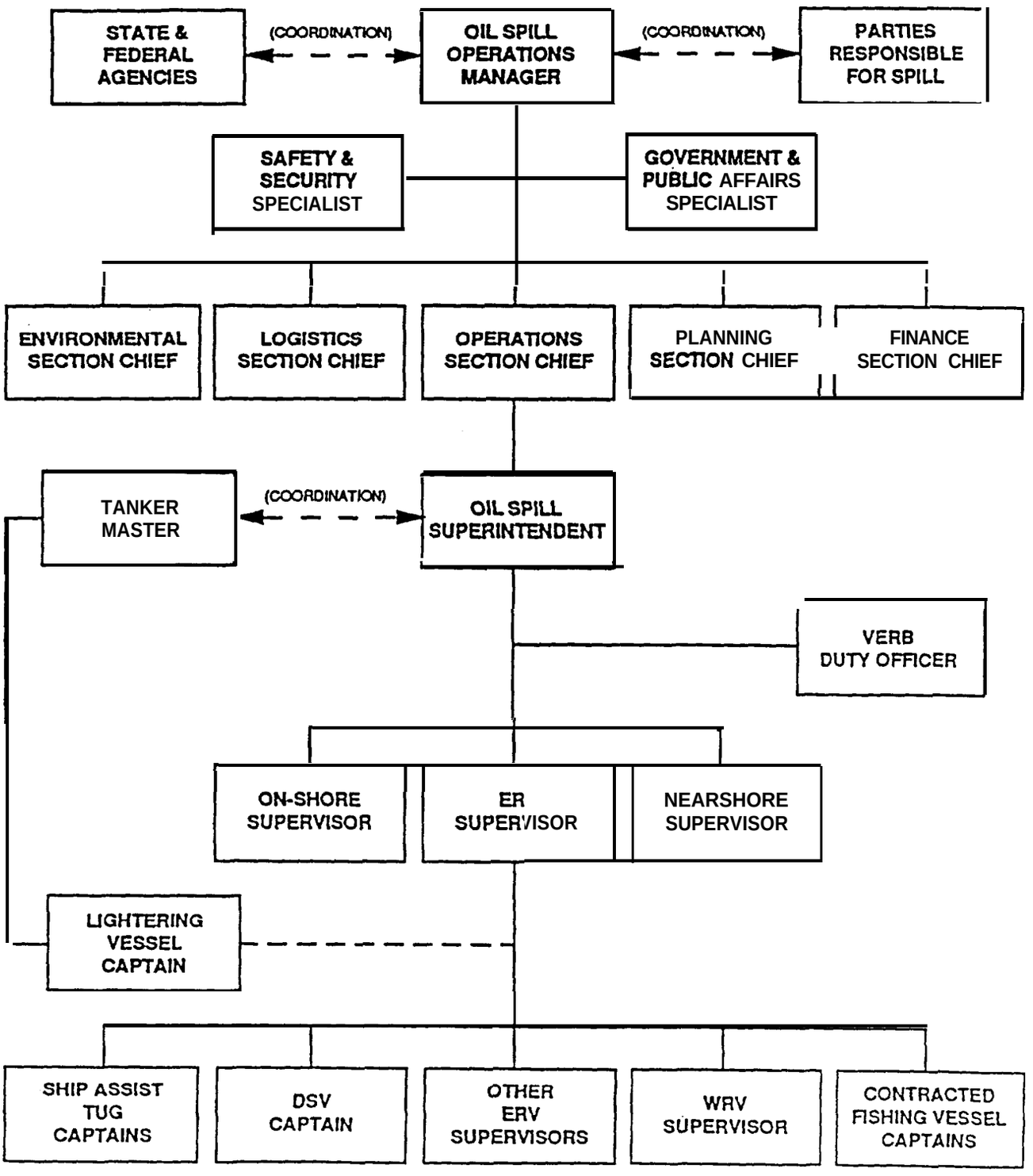

JOINT RESPONSE CENTER/
RESPONSE COMMANDER/
OVERALL RESPONSE
COORDINATION
OSC
at sea
OSC
beach(es)
RESPONSE TEAMS

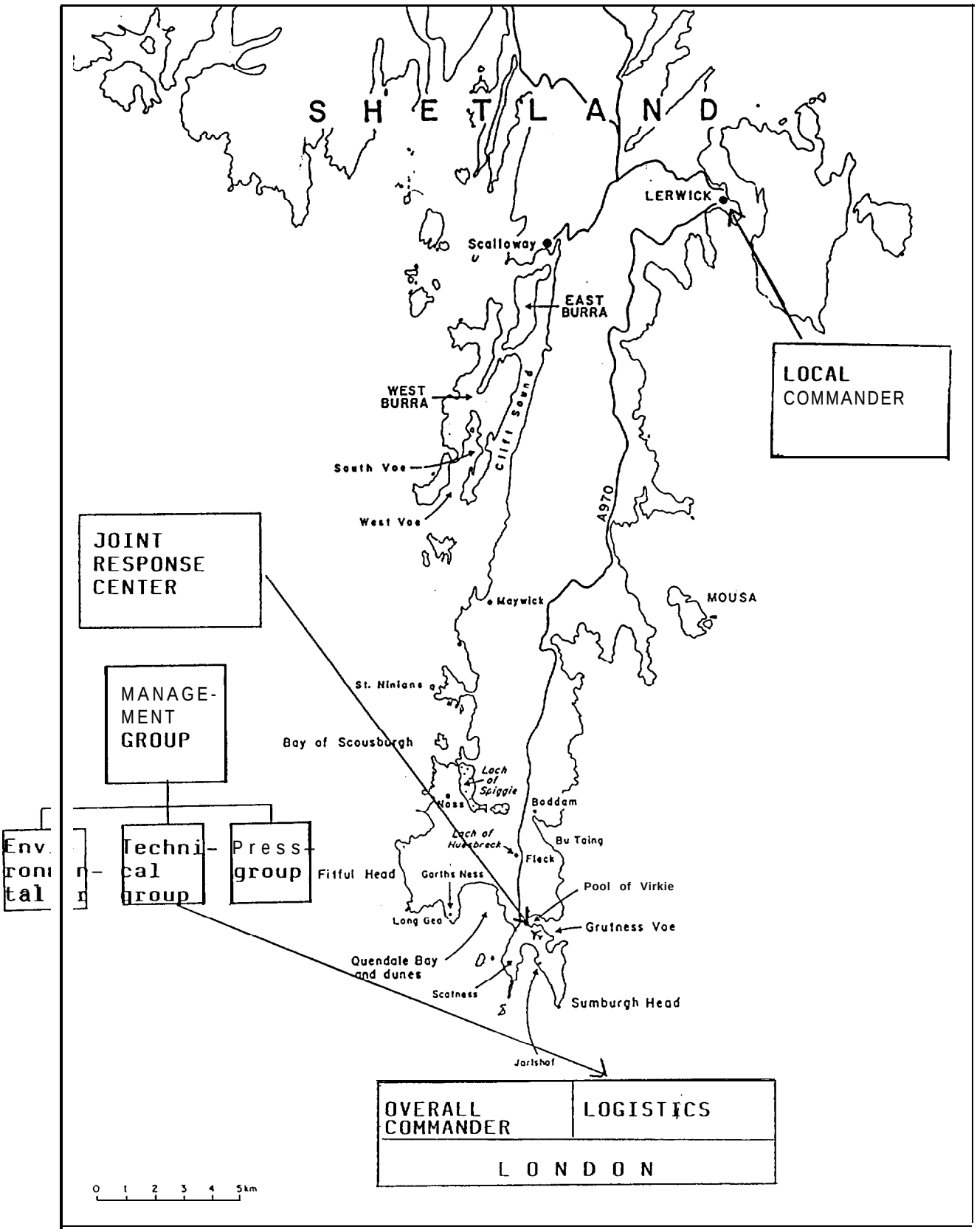
FIGURE 302-I

TANKER SPILL PREVENTION AND RESPONSE PLAN

MANAGEMENT ORGANIZATION

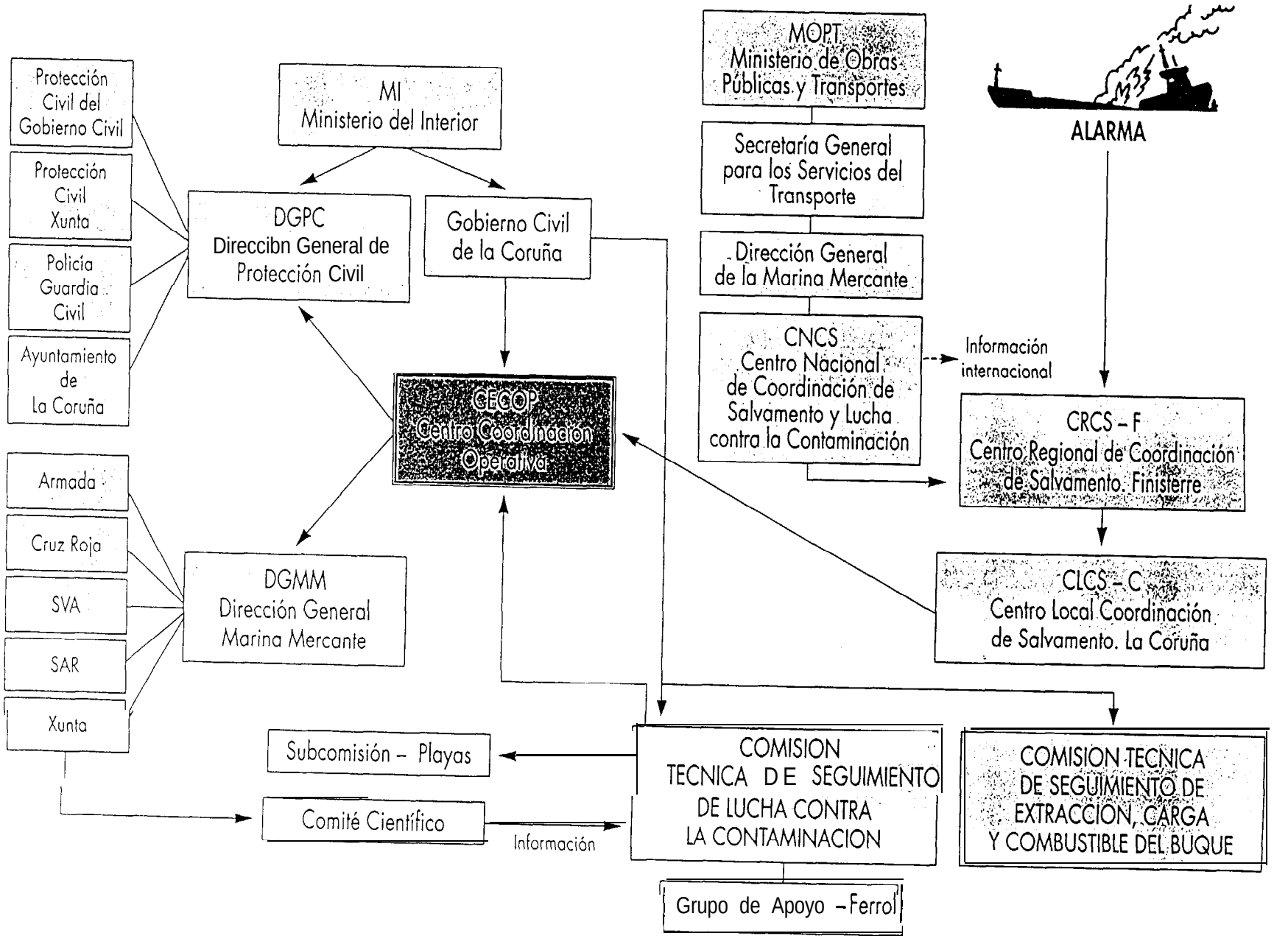


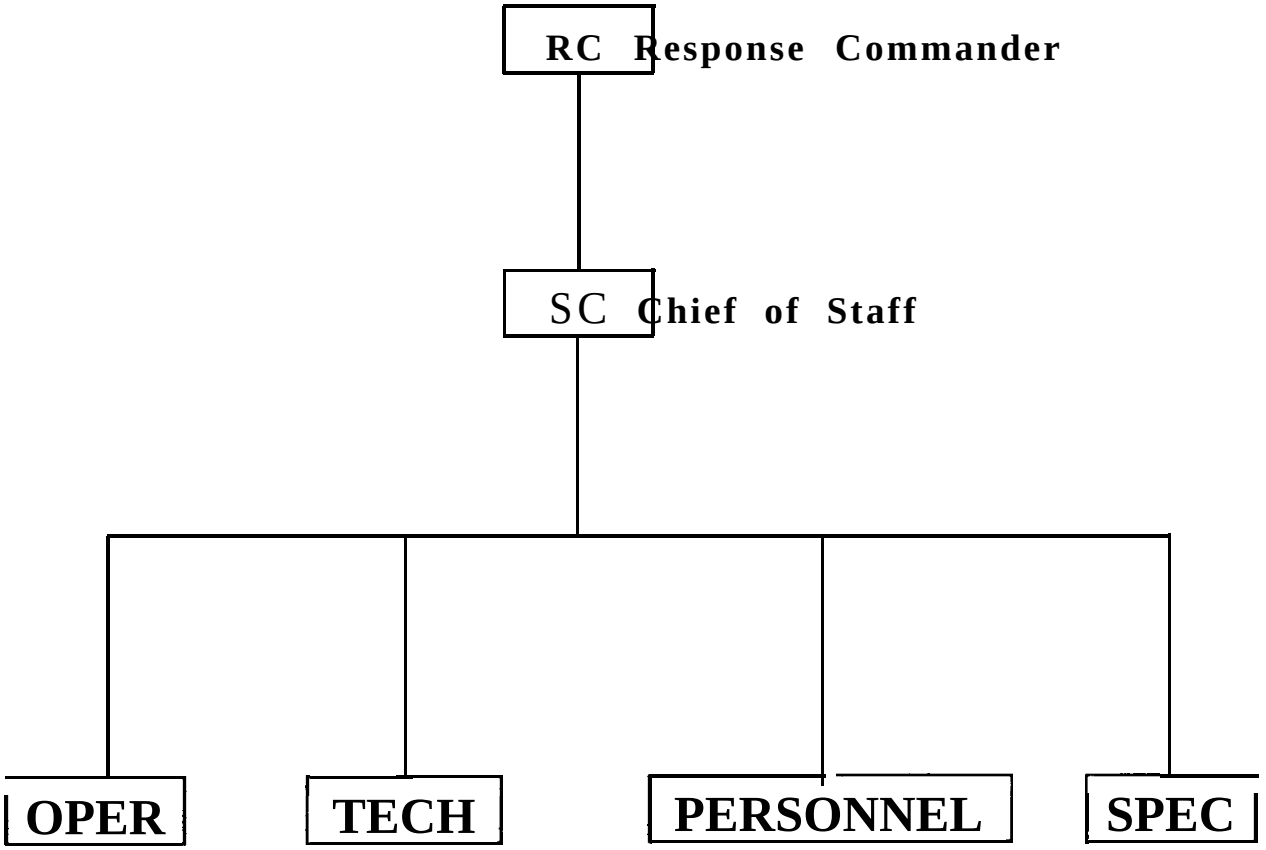
300-2



Toponymical map of south Shetland

ORGANIGRAMA DE LA ORGANIZACION PUESTA EN MARCHA TRAS EL ACCIDENTE DEL "AEGAN SEA"




RC Response Commander
SC Chief of Staff
OPER
TECH
PERSONNEL
SPEC

OPERATIONAL FUNCTION

★ **Continuously survey and check the situation**

★ **Present necessary basis for RC's decision on action**

★ **Plan the response work in detail**

★ **Give information, orders, resources and guidelines to subordinate chiefs**

★ **Cooperate with other bodies**

★ **Inform mass media and public**

★ **Follow up and keep records of the activities**

★ **Guarantee the support of communication equipment**

★ **Clarify and inform about communication routes**

★ **Receive, submit and distribute orders, reports and other messages to and from the RC staff**

★ **Keep records of received and submitted messages**

★ **Maintain and survey good communication discipline.**

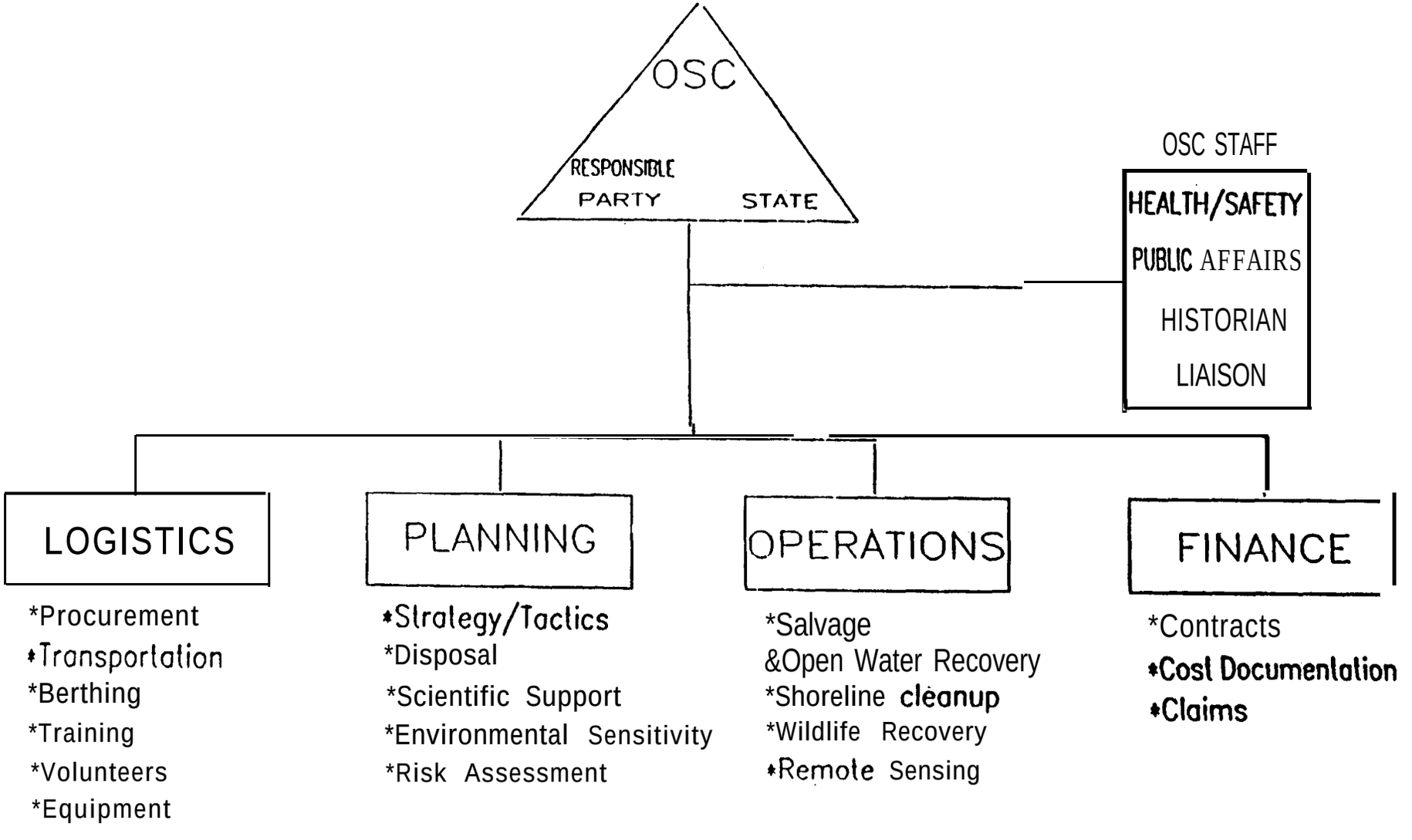
TECHNICAL FUNCTION

- ★ **Guarantee the support of equipment and necessities**
- ★ **Establish and run a maintenance base with a base commander and necessary personnel**
- ★ **Guarantee the support of logistics**
- ★ **When necessary maintain the staff's facilities when located in "staff containers" (modified box containers)**
- ★ **Guarantee the personnel's safety.**

MANAGEMENT FUNCTION

- ★ **Ascertain the need for personnel**
- ★ **Arrange the personnel's accommodation and feeding**
- ★ **Organize and keep records of the personnel management**
- ★ **Organize the health care**
- ★ **Organize the personnel service.**

FIGURE 2, ON-SCENE COORDINATOR (OSC) FUNCTIONAL ORGANIZATION



1993-08-16

Dan Thorell

MANUAL ON CO-OPERATION IN COMBATTING MARINE POLLUTION

This paper is to give an introduction in the use of the HELCOM MANUAL ON CO-OPERATION IN COMBATTING MARINE POLLUTION (the Manual), the paper should be read together with the Helsinki Convention and the Manual.

Introduction

The Baltic Sea co-operation in combatting spillages of oil and other harmful substances at sea is based on the Helsinki Convention and the HELCOM Recommendations on combatting matters adopted by the Helsinki Commission.

Recommendation 2/5	Recommendation Concerning the Command Structure for Joint Combatting Operations
Recommendation 2/6	Recommendation Concerning Radio Communication in Joint Combatting Operations
Recommendation 2/7	Recommendation Concerning Delimitation of Response Regions for Combatting Marine Pollution
Recommendation 3/5	Recommendation Concerning Financial Impact of Assistance Rendered
Recommendation 4/4	Recommendation Concerning the Use by the Baltic Sea States of the Manual on co-operation in Combatting Marine Pollution within the Framework of the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1974. (This Recommendation supplements HELCOM Recommendations 2/4, 2/5 and 2/6)
Recommendation 5/3	Recommendation Concerning Guidelines for the Calculation of the Total Costs Which Should Be Paid by the Requesting Country to the Assisting Country or Countries

Recommendation 6/13	Recommendation Concerning Co-operation in Investigating Violations or Suspected Violations of Discharge and Related Regulations for Ships and Dumping Regulations
Recommendation 6/ 14	Recommendation Concerning Establishing of an Early Warning Reporting System for Pollution Incidents
Recommendation 7/12	Recommendation Concerning the Application of the IMO Guidelines for Reporting Incidents Involving Harmful Substances
Recommendation 10/ 1	Recommendation Concerning Abnormal Situations in the Marine Environment
Recommendation 10/8	Recommendation Concerning Co-operation in Investigating Violations or Suspected Violations of Discharge and Related Regulations for Ships and Dumping Regulations. (This Recommendation supplements Recommendation 6/13)

At the third meeting of the Helsinki Commission in February 1982 it was decided that a manual on co-operation in combatting spillages of oil and other harmful substances on the sea should be worked out within the Helsinki Convention context and that such a manual should contain a series of detailed guidelines for reporting, management, rendering of assistance, etc. in joint combatting operations.

The manual, **Volume 1** (containing guidelines for co-operation) and **Volume 2,** (containing national information on organization, special regulations, combatting resources and procedures relating to request for salvage, docking and tugboat assistance) was adopted by the Helsinki Commission at its fourth meeting in February 1983 according to HELCOM Recommendation 4/4. Volumes 1 and 2 have primarily been worked out relating to co-operation in combatting spillages of oil.

Volume 3 RESPONSE TO INCIDENTS INVOLVING CHEMICALS (containing information on transportation of chemicals and related risks in the Baltic Sea Area, as well as suitable combatting methods) was adopted in accordance with HELCOM Recommendation 4/4 by the Combatting Committee at its 13th meeting in November 1989.

The updating of the guidelines, etc. in the Manual is the responsibility of the Helsinki Commission Secretariat according to information received from the Contracting Parties and instructions given by the relevant body of the Helsinki Commission.

It should be noted that the guidelines contained in the manual are valid on the conditions that they are not in contradiction to national legislation or other national regulations of the Contracting Parties.

Volume 1

Chapter 1, INTRODUCTION contains a brief general introduction including a glossary of terms used in the Manual.

Chapter 2, comprise the text of Articles 9, 10 and 11 and Annexes V and VI of the Helsinki Convention.

Chapter 3, HELCOM RECOMMENDATIONS ON CO-OPERATION IN COMBATTING MARINE POLLUTION ADOPTED BY THE HELSINKI COMMISSION, comprise operative parts of relevant HELCOM Recommendations and the agreed guidelines.

Chapter 4, RESPONSE REGIONS, comprise delimitation of response regions, agreed between Contracting Parties of the Helsinki Convention according to HELCOM Recommendation 2/7. The present edition of the manual contains the following response regions

- Denmark - Federal Republic of Germany
- Finland - Sweden
- Finland - USSR
- Denmark- Sweden
- German Democratic Republic - Sweden
- Polish People's Republic - Sweden

Chapter 5, GUIDELINES FOR REPORTING, are divided in to six sub chapters.

Chapter 5.1 GENERAL GUIDELINES FOR REPORTING, contains reporting procedures stated in the Convention and reporting established in accordance with decisions taken by the Commission (Recommendation 2/4 and 6/14).

Normal communication between national authorities should be carried out via TELEX. However, under certain circumstances telephone or telefax would be the most benefit way of communication but decisions, requests, etc. agreed to on telephone or telefax should always be confirmed immediately afterwards by TELEX.

Chapter 5.2 INFORMATION SCHEME, contains contact addresses for competent authorities under Annex VI Regulation 9.1.d of the Convention and for exchange of information on oil combating actions, operations, equipment, drills etc. (according to Regulations 9 and 10 of Annex VI of the Helsinki Convention)

Chapter 5.3 COMMUNICATION SCHEME for report according to Article 9 (prevention of dumping) and Paragraphs 2-4 of Regulation 5 of Annex VI of the Convention on the Protection of the Marine environment of the Baltic Sea Area, 1974.

Chapter 5.4 POLLUTION REPORT BALTIC (POLREP BALTIC) describes the POLREP-system in general terms.

The system is for use between combatting authorities to exchange information when pollution of the sea has occurred or when a treat of such i present.

The POLREP BALTIC is divided into three parts:

- Part I or POLWARN (POLlution **WARN**ing) is used to give information or warning of pollution or treat of pollution. When POLWARN is used as a warning it should be transmitted with the traffic priority URGENT. Such a POLREP should always be followed up by a supplementary POLREP or be cancelled.

- Part II or POLINF (POLlution **INF**ormation) is used to give detailed information about the incident.

- Part III or POLFAC (POLlution **FAC**ilities) is used for matters related to assistance. If necessary this POLREP can be transmitted with traffic priority URGENT.

Chapter 5.5 POLLUTION REPORT BALTIC (POLREP BALTIC) gives detailed information on the POLREP system including:

- summarized list on POLREP BALTIC (annex 1)

- detailed explanations of the report heading and the item numbers in Part I, II and III of the POLREP BALTIC

- POLREP BALTIC sample messages illustrating how the system can be used for different purposes.

Chapter **5.6** INTERNATIONAL EARLY WARNING REPORTING SYSTEM FOR POLLUTION CAUSED BY ALGAL BLOOMS contains a reporting format (annex 2) to cover “natural” pollution incidents in the form of algal blooms. The format is approved by the 15th meeting of the Combatting Committee in accordance with HELCOM Recommendation 10/1.

Chapter 6 GUIDELINES FOR REQUEST AND PROVIDING OF ASSISTANCE contains guide lines for requiring and providing assistance for combatting spillages of oil or other harmful substances at sea according to Annex VI, regulation 8 of the Helsinki Convention.

Request for assistance from a Contracting Party (Requesting Party) shall be made by the competent authority and be addressed to the Competent authority of another Contracting Party (assisting party).

The requesting party is responsible for necessary domestic arrangements for border passage, housing, base arrangements etc.

Request by telephone shall always be confirmed by telex.

Request for assistance can consist of:

- specified equipment only
- specified equipment with trained personnel
- complete strike teams
- personnel with special expertise.

The assisting party shall use its best endeavour to bring about requested assistance and be prepared to give information on economic consequences connected with the requested assistance.

Chapter 7 OPERATIONAL CO-OPERATION contains operational guidelines for joint operations.

The Contracting Party who has a multinational combatting force operating within its response region shall, otherwise agreed, be in charge of the joint operation (lead country).

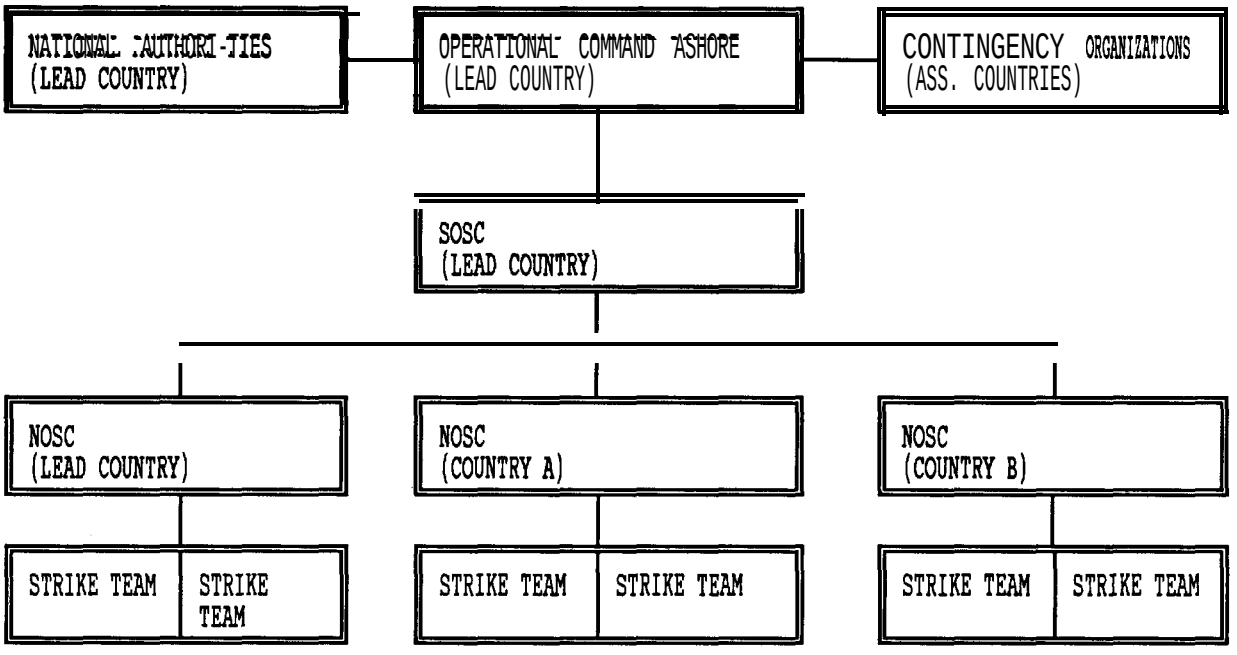
To that effect the lead country shall, inter alia:

- give administrative, operational and logistic support to assisting foreign units
- give clearly defined tasks to all units
- organize the practical co-operation between units from different countries
- keep all units well informed of the overall situation
- keep firm contact with the command organizations of assisting countries in order to secure that foreign units can be transferred to national command if necessitated.

If the main body of the pollution passes the border line of a neighboring country's response region, the operational command will normally be transferred to the country whose response region is thus affected by the main body of the pollution.

In combatting situations where two or more Contracting Parties are or could be involved, the Contracting Parties in question shall be entitled to send two liaison officers as a maximum to the respective national centres responsible for the combatting operation.

COMMAND STRUCTURE FOR JOINT COMBATTING OPERATIONS



Chapter 8 RADIO COMMUNICATION contains guidelines for communication for joint combatting operations including an outline scheme for radio communication, annex 3.

It should be noted that the working language during an operation is English if otherwise agreed between the participating parties.

An example on a communication scheme for joint combatting operations is shown in annex 3 to this paper. The scheme is divided into tree levels:

1 Operational command ⟺ Supreme On Scene Commander (Co-ordinator)(SOSC)
2 SOSC⟺ National On Scene Commander (Co-ordinator)(NOSC)
3 NOSC⟺ Strike teams

Chapter 9 EXERCISES contains guidelines for joint exercises i co-operation i combatting spillages on the sea within the Baltic Sea Area. The present text in the manual is from 1983.

In 1990 an informal working group on joint exercises gave their report to the Combatting Committee. The report and an extract from the report of the 14th meeting of the Combatting Committee comprising the decisions of the Committee is attached to this paper (annex 4).

Chapter 10 FINANCIAL IMPACT OF ASSISTANCE RENDERED contains guidelines according to HELCOM Recommendations 3/5 and 5/3. The chapter is annexed to this paper (annex 5).

Chapter 11 CO-OPERATION IN INVESTIGATING VIOLATIONS OF DISCHARGE AND RELATED REGULATIONS FOR SHIPS AND DUMPING REGULATIONS

The Commission adopted at its sixth meeting HELCOM Recommendation 6/3. In adopting Recommendation 6/3 the Commission recommend that the Governments of the Contracting Parties to the Helsinki Convention should apply the guidelines attached to the Recommendation when co-operating in investigating violations or suspected violations of discharge and related regulations for ships and dumping regulations.

According to amendments to Regulations l-5 of annex IV and appendices I-IV to annex IV of the Helsinki Convention, and amendments to regulation 5 of annex VI and the appendix to annex VI of the Helsinki Convention as well as the entry into force of annexes II and V of MARPOL 73/78, the Commission on its 10th meeting adopted HELCOM Recommendation 10/8. In adopting Recommendation 10/8 the Commission recommended that the Governments of the Contracting Parties to the Helsinki Convention should apply the guidelines attached to the Recommendation 10/8 in lieu of the guidelines attached to Recommendation 6/3.

Chapter 12 CO-OPERATION ON AERIAL SURVEILLANCE OVER THE BALTIC SEA AREA, contains the HELCOM joint flight programme.

Co-operation on aerial surveillance within the HELSINKI CONVENTION is carried out in accordance with HELCOM Recommendation 12/8, and the HELCOM plan for Aerial Surveillance Co-operation.

The purpose of airborne surveillance is to detect spills of oil and other harmful substances that can threaten the marine environment of the Baltic Sea Area. These spills caused by accident or made in contravention of international conventions will be registered and if possible sampled both from the sea surface and on board the suspected offender.

This chapter describes how the Contracting Parties shall establish close co-operation on airborne surveillance, the participating stats available aircraft and flight hours, flight types, reporting, etc.

According to decision in the Combatting Committee the Contracting Parties carry out two joint flights per year.

Combatting Committee decided at its 15th meeting in Gdynia, Poland, to establish an informal working group on aerial surveillance. Germany is acting as lead country for these activities during 1992/93.

Volume 2

Volume 2 contains national information on national contingency,organization, special regulations, combatting resources and request for salvage, docking and tugboat assistance. Each party is described in its own sub chapter. The introduction includes a summery of national combatting resources.

Volume 3

Volume 3 is very well described in the introduction to Volume 3, annex 6.

The Helsinki Convention has been revised, which most likely means that the Manual, Volume 1, also has to be revised.

Summarized list on POLREP BALTIC

Address from .....
to.....

DK	:	64471 sok dk
SF	:	124777 slmjk sf
DDR	:	31268 rccros dd
D	:	232205 rvzcx d
PL	:	54285 umor pl
s	:	17198 tullsth s
su	:	121512 rcc su
HELCOM:		125105 hlcom sf

URGENT (only when POLREP BALTIC is used as POLWARN or POLFAC)

Date Time Group

Identification

Serial Number

PART I (POLWARN)

1. Date and time
2 Position
3. Incident
4. Outflow
5. Acknowledge

PART II (POLINF)

40. Date and time
41. Position
42. Characteristics of pollution
43. Source and cause of pollution
44. Wind direction and speed
45. Current or tide
46. Sea state and visibility
47. Drift of pollution
48. Forecast
49. Identity of observer and ships on scene
50. Action taken
51. Photographs or samples
52. Names of other states informed
53 - 59. Spare
60. Acknowledge

PART III (POLFAC)

80. Date and time
81. Request for asssistance
82. Cost
83. Pre-arrangements for the delivery
84. Assistance to where and how
85. Other states requested
86. Change of command
87. Exchange of information
88 - 98. Spare
99. Acknowledge

INTERNATIONAL EARLY WARNING REPORTING SYSTEM FOR POLLUTION CAUSED BY ALGAL BLOOMS

ALGPOLREP

A reporting format to cover "natural" pollution incidents in the form of algal blooms has been developed by the Paris Commission's Working Group on Nutrients and adopted by the Paris Commission and temporarily by the Contracting Parties of the Bonn Agreement. The reporting format is approved for use in the Baltic Sea Area by the 15th meeting of the Combatting Committee.

Summarized List

Address	from	to
Date time group		
Identification	ALGPOLREP	HELCOM
Serial Number		

PART I: ALGPOLREP (1-6)

1 Date and time of observation
2 Position
3 Algal bloom
4 Type of algae
5 Flow direction and rate
6 Acknowledge

PART II: ALGPOLINF (40-70)

40 Date and time
41 Area covered, patchy/homogenous
42 Type/colour of algal bloom
Colour code: 1 = colourless, 2 = yellow, 3 = orange, 4 = red, 5 = green, 6 = blue, 7 = brown, 8 = unknown (observation at night)

43 Coastal/open sea area
44 Wind direction and speed
45 Current (direction and speed); tide
46 Sea state and visibility

Original, December 1991
Amendment No. 10

47 Drift of algal bloom and velocity
48 Forecast of effects: zones affected,arrival on beachee,fishfarms
49 Identity of observer (ships, aircraft involved)
50 Action taken
51 Photographs and/or samples taken
52 Detection: remote sensing (IR, SLAR, W) and/or visual
53 Names of other states informed
54 Algal concentration
55 Salinity

56 Temperature
57 Species
58 Toxicity
59 Foaming/colouring
60-69 Details of monitoring
70 Acknowledge

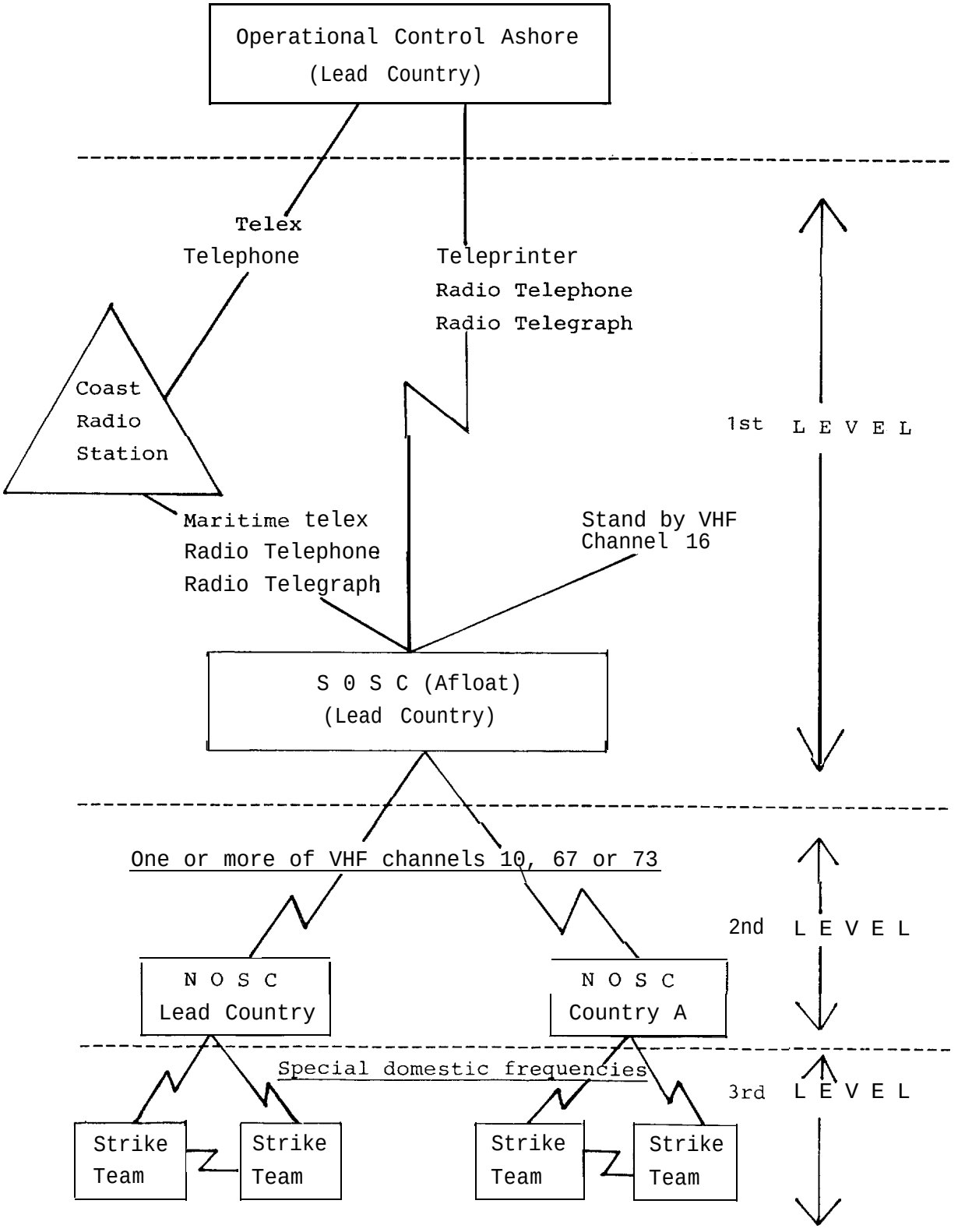
PART III: ALGPOLFAC (80-99)

80 Date and time
a1 Request for assistance (equipment, experts)
a2 cost
a3 Pre-arrangements for the delivery
a4 Assistance to where and how
a5 Other states requested
86 Change of command (when bloom has moved)
a7 Exchange of information
88-98 Spare (any other requirements or instructions)
99 Acknowledge

In compliance with HELCOM Recommendation 10/1 ALFPOLREP is forwarded to National Contact Addresses/National Reporting Centres which transmit the report to the relevant national authorities or institutes. The National Contact Addresses/National Reporting Centres are not responsible for the entries under the different codings for the "natural" pollution incidents.

Original, December 1991
Amendment No. 10

BALTIC COMMUNICATION PLAN FOR JOINT COMBATTING OPERATIONS



Original, March 1983

Informal Working Group Meeting

on

Joint Exercises

Copenhagen 31st May 1990

1. Introduction

1.1. At its 13th Meeting, Rostock 13-17 November 1989, the Combatting Committee (CC) when considering the future Joint Combatting exercises agreed upon terms of reference for an informal working group on Joint Exercises in the Baltic Baltic Sea. The terms of reference is attached as Annex I (CC 13/16 para 9.8).

1.2. Denmark undertook to be the Lead Country for the informal working group and invited the Contracting Parties to a meeting in Copenhagen 31st May 1990 (CC 13/16 para 9.9). The annotated Agenda for the Meeting is attached as Annex II.

1.3. The Meeting was attended by Delegations from most of the Contracting Parties. The Federal Republic of Germany had in beforehand submitted written comments.

The Meeting was chaired by Commander P. Stamp, Denmark.

List of Participants is attached as Annex III.

2. Outcome of the discussions based on the terms of reference

2.1. "To evaluate overall aims for the different types of exercises which are stated in the HELCOM Manual". (Volumen I, chapter 9.1).

2.1.1. Synthetic Exercise (BALEX ALPHA)

The Working Group (WG) proposed that Synthetic Exercises should be introduced in the CC Meetings every second or third year, starting in Sweden 1992.

Another solution will be to arrange seperate meetings for the execution of such exercises. This solution would probably result in a better outcome but also result in additional costs.

2.1.2. Alarm Exercise (BALEX BRAVO)

The WG was of the opinion that there is still a need to execute this type of exercises with regular intervals mainly because of newcomming personel in the various combatting organizations.

However, the WG felt that it should be underlined in the manual that BALEX BRAVO also should be executed outside normal working hours.

Furthermore, in addition to the yearly draft exercise schedule set-up by the Secretariat, the WG proposed that the Contracting Parties bilateral and without approval from the CC can agree upon and execute this type of exercises also with the aim only to test lines of communications.

2.1.3. Equipment Exercise (BALEX CHARLIE)

The WG held the opinion that according to practice the destinction between BALEX CHARLIE and the operational exercise (BALEX DELTA) is not practical any **more.**

This is in line with the "Meeting and Exercise schedule 1986-1990" in the Manual (Vol. I, Chapter 9.2 page 1).

According to this BALEX CHARLIE exercises have not been executed lately, probably due to the fact that the Operational Co-operation between the Contracting Parties has developed considerably.

Accordingly the WG proposed that the aim of BALEX CHARLIE exercises should be changed to "exercises with the specific aim of technical and/or scientific testing of equipment and techniques or specific operational procedures" but deleting the overall operational aspects.

2.1.4 Operational Exercise (BALEX DELTA)

The WG felt that last sentence in the manual dealing with "Guidelines" can be deleted as such guidelines to a certain extent will be substituted by the checklist as mentioned in para 2.7.

2.2. "To make a draft seven year plan for joint exercises taking into account the exercise schedules within other agreements".

Based on the "Meeting and Exercise Schedule 1986 - 1990" (Vol I, Chapter 9.2. page 1) and certain specific national circumstances the WG proposed the following seven year exercise schedule:

CC Host Country	Balex Alpha	Balex Bravo	Revised Balex Charlie	Balex Delta
1991 Polen		To be proposed by the Secretariat or to be initiated on bilateral basis after agreement directly between the Contracting Parties	As decided upon by CC	DK
1992 Sweden	X			USSR
1993 USSR				GDR/FRG
1994 Denmark	X			FI
1995 Finland				FRG
1996 FRG	X			SW
				PO

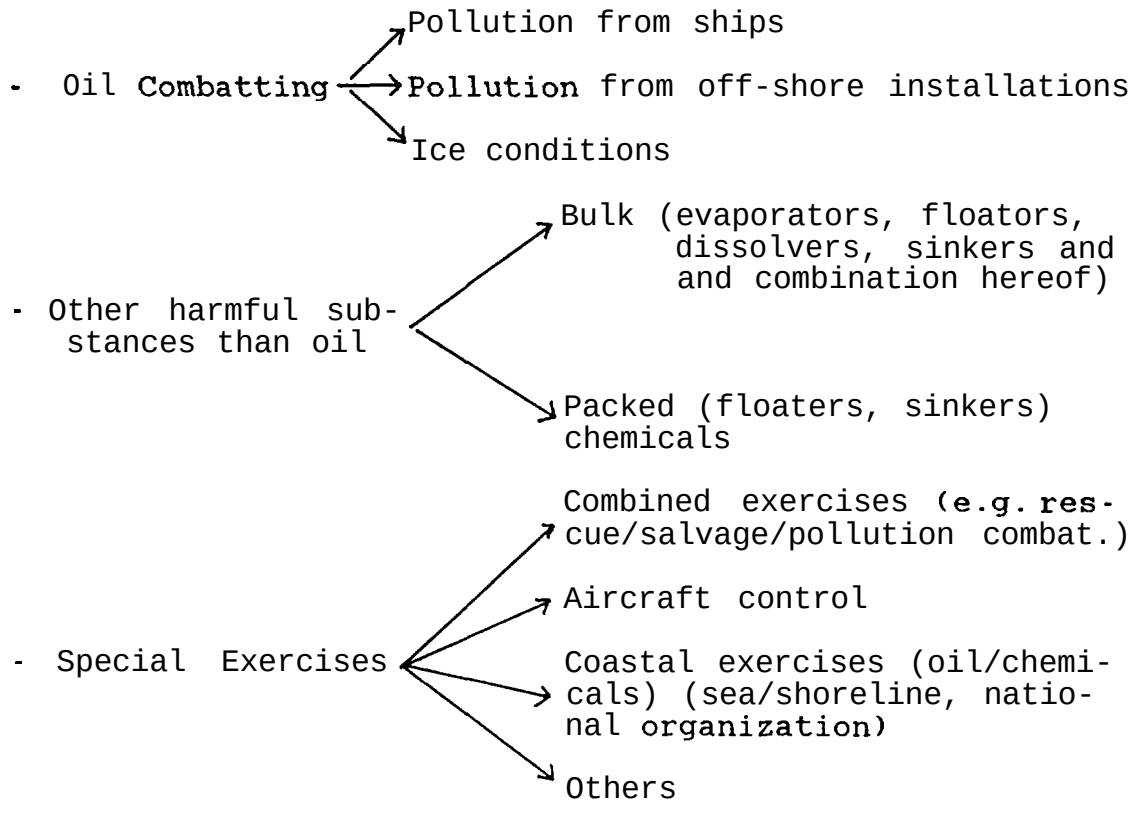
2.3. "To **formulate and** present aims and goals in general terms for each exercise in the above mentioned plan taking into consideration new developments in scientific, technological and maritime fields".

2.3.1. It was decided to devide aims and goals in two major groups to enable to establish exercises being a combination of subitems from each major group.

2.3.2. Maior Group I should consist of

- exercises in real time and without warning **(R)**
- exercises with transfrontier pollution **(T)**

2.3.3. Maior Group II should consist of - but no be restricted to



2.3.4 In accordance with para 2.2. and 2.3.3. the WG agreed upon aims for the 7 year plan (BALEX DELTA) as follows:

1991 DK Oil combattins. off-shore installations. If no off-shore installations are present in the exercise area then: Special Exercise. Coastal (oil)

1992 USSR Special Exercise, combined (rescue salvage pollution)

1993 GDR/FRG Special Exercise. Aircraft Control

1994 FI Oil Combatting. Ice conditions

1995 FRG/GDR Other Harmful Substances. Packed chemicals

1996 SW Other Harmful Substances. Bulk

1997 PO Oil combattins, off-shore installations. If no off-shore installations are present in the exercise area then: Special exercise, Coastal (oil)

It was the opinion of the WG that CC at their annual meetings should decide upon further details to be exercised in the comming year exercise but not changing the main aim as proposed above (Major Group II). Whether it should be real time exercises and/or transfrontier pollution exercises (Major Group I) should also be decided upon by the CC Meeting.

2.4. "To develop guidelines for the unbiased evaluation of the exercises".

2.4.1. To achieve most benefit of the BALEX DELTA Exercises the WG proposed that each exercise shall be evaluated of a team of 2-4 experts of which maximum 1 expert must be from the Lead Country.

2.4.2. Based on their findings the evaluation team shall give an oral presentation of their conclusions immediately after the exercise (at the debriefing) and a written report should be submitted to the next CC Meeting.

2.4.3. The evaluation team decide between themselves, their individual tasks and geographical location in the exercise.

2.4.4. The CC Meeting appoint the evaluation team for the coming years exercise. This appointment is based on Curriculum Vitae from potential Evaluation team members submitted in beforehand by the Contracting Parties to the Secretariat.

2.4.5. The Lead Country for a BALEX DELTA exercise submit in due time exercise details to the evaluation team for comments.

2.5. "To invent and consider the possibilities of combined exercises for example involving both HELCOM units (strike teams) and different national organizations ashore".

This item has been dealt with under para 2.3.

2.6. "To evaluate and propose a system of standards for symbols, abbreviations and reporting based on the HELCOM Manual".

2.6.1. It was not clear to the WG the real need for and use of such symbols. It was therefore decided to request next CC Meeting to clarify this point. H-wever, an example on symbols is attached as Annex IV for further consideration by the next CC Meeting.

2.6.2. It was the opinion of the WG that the Manual Volume I, Chapter 1 "Glossary of Terms used in the Manual" if CC

decides to establish standard symbols (para 2.6.1 refers) could form the basis for the further work with abbreviations and symbols.

2.6.3. The Danish delegation presented the BONN Agreement Manual Standard Exercise Report.

The WG agreed upon that this Exercise Report could be introduced in the Helsinki Convention as standard report for Lead Countries after execution of BALEX DELTA Exercises. This reporting format should, however, not be used by the Evaluation teams.

The BONN Agreement exercise report is attached as Annex V.

2.7. "To prepare a checklist for parties who are arranging exercises. The checklist should reflect items to be fulfilled by the host country as well as by the visiting units from other parties".

Based on the BONN Agreement Manual, Chapter A-12 (Checklist of Administrative and Organizational Problems which could arise in assistance operations and possible sollutions to those problems), and various exercises in particular from the BALEX DELTA exercise in Sweden 1989 and the Copenhagen Agreement exercise in Denmark 1990 the delegations from Sweden and Polen offered - during their planning meeting on 6th June in Karlskrona for the 1990 BALEX DELTA exercise in Poland - to prepare a checklist (subject index). The proposal is attached as Annex VI.

3. Need for further meetings

The WG felt no need for further meetings.

Preben S. Stamp

5.2 Some Delegations expressed the opinion that the proposals presented in document CC 14/5 relate to activities of the Environment Committee, and that the Combatting Committee is not a competent body to approve them, as the follow-up studies are not operational parts of combatting operations. Some Delegations, however, supported the approval of the draft HELCOM Recommendation on follow-up studies and the guidelines for these studies.

5.3 In the spirit of compromise, the Delegation of Finland submitted document CC 14/5/Corr.1 with amendments to the guidelines for oil spill follow-up studies.

5.4 The Meeting accented the proposed amendments (CC 14/5/Corr.1) and adopted the guidelines for oil spill follow-up studies. The guide
./8 lines are attached as Annex 8 to this Report.

5.5 The Meeting requested the Secretariat to distribute the adopted Guidelines to the Contact Addresses of the Environment Committee well in advance of HELCOM 12 for their comments before the adoption of the draft HELCOM Recommendation on follow-up studies in connection with major oil spills.

5.6 The Meeting approved the draft HELCOM Recommendation on follow-up studies in connection with major oil spills and decided to propose HELCOM 12 to adopt it. The draft HELCOM Recommendation is attached as
./9 Annex 9 to this Report.

Agenda Item 6 JOINT COMBATTING EXERCISES

6.1 The Chairman of the Informal Working Group on Joint Exercises in the Baltic Sea, Mr. Preben Stamp of Denmark, reported on the outcome of the meeting of the Informal Working Group (CC 14/6), held in Copenhagen on 31 May 1990.

6.2 In his presentation he pointed out proposals made by the Informal Working Group which require decisions by CC 14.

6.3 He informed that the Group had proposed that the Synthetic Exercises (BALEX ALPHA) should be introduced in the CC meetings every second or third year, starting in Sweden 1992.

The Group had also proposed that there is a need to continue with the Alarm Exercises (BALEX BRAVO) mainly because of newcoming personnel in the various combatting organisations.

The Group had further proposed that the aim of the Equipment Exercises (BALEX CHARLIE) should be changed to "an exercise with the specific aim of technical and/or scientific testing of equipment and techniques or specific operation procedures" but deleting the overall operational aspects.

With regard to the Operational Exercises (BALEX DELTA) the Group had proposed to delete the last sentence in the Manual dealing with Guidelines and to substitute it by the checklist based on the Bonn Agreement Manual.

6.4 The Group had proposed also a draft seven-year exercise schedule (Paragraph 2.2 of document CC 14/6).

6.5 The Group had formulated also aims and goals in general terms for exercises and divided them into two major groups (Paragraphs 2.3-2.33 of CC 14/6). Major Group I should consist of exercises in real time and without warning and exercises with transfrontier pollution. Major Group II should consist of oil combatting, combatting of other harmful substances than oil and special exercises.

6.6 The Group had further made a proposal on the aims for the seven-year plan BALEX DELTA (Paragraph 2.3.4 of CC 14/6) (cf. Paragraph 6.5 of this Report). It was the opinion of the Group that CC at its annual meetings should decide upon further details to be introduced in the coming yearly exercise, however, without changing the main aim of the exercise.

6.7 The Group had further proposed that each BALEX DELTA exercise shall be evaluated by a team of 2-4 experts of which maximum one expert must be from the Lead Country. The evaluation team should beforehand comment on the exercise orders as formulated by the Lead Country, give an oral presentation on the exercise immediately after the exercise has been completed and submit a written report to the next CC meeting. The Combatting Committee would appoint the evaluation team for the coming exercise, based on the curriculum vitaes of the potential evaluation team members to be submitted to the Secretariat by the Contracting Parties.

6.8 With regard to the evaluation of a system of standards for symbols, the Group had decided to request CC 14 to clarify this point. However, it had evaluated as an example some symbols which might be used for communication when conducting an exercise (Annex IV to CC 14/6).

6.9 The Group had proposed to use the Bonn Agreement Manual Standard Exercise Report as standard report for Lead Countries after execution of BALEX DELTA exercises within the Helsinki Convention.

6.10 The Group had proposed also a checklist as prepared by Sweden and Poland during their planning meeting in Karlskrona for the 1990 BALEX DELTA exercise (Annex VI to CC 14/6).

6.11 The Delegation of Germany stated that due to the unification of Germany the plan for joint exercises should cover a six-year period.

6.12 With regard to the proposals made by the Informal Working Group on Joint Exercises in the Baltic Sea, the Meeting decided, in relation to the following Paragraphs of this Agenda Item:

Paragraph 6.3

to conduct BALEX ALPHA exercise during the 1992 CC meeting in Sweden with the host country as the Lead Country and to decide accordingly on further BALEX ALPHA exercises at one of its future meetings after 1992;

to continue with BALEX BRAVO exercises. The Meeting also agreed that the Contracting Parties can bilaterally and without approval from the CC execute this type of exercises also with the aim only to test lines of communication;

to change the aim of BALEX CHARLIE to equipment test exercise;

to delete the last sentence in the Manual dealing with guidelines and substitute it by the checklist;

Paragraph 6.4

./10 – to accept a six-year exercise schedule. The plan is attached as Annex 10 to this Report;

Paragraph 6.5

to accept the aims and goals of the exercises as proposed by the Working Group;

Paragraph 6.6

to accept the aims for the six-year plan (BALEX DELTA) as follows:

1991 Denmark – Oil Combattins, offshore installations. If no offshore installations are present, the exercise includes then: Special Exercise, Coastal (Oil) (Exercise in real time and without warning);
1992 USSR – Special Exercise, combined (rescue, salvage pollution);
1993 Germany – Special Exercise. Aircraft control.
1994 Finland – Oil Combatting. Ice conditions.
1995 Sweden – Other Harmful Substances. Packaged chemicals.
1996 Poland – Other Harmful Substances. Bulk;

Paragraph 6.7

to accept the procedure for appointing an evaluation team, as proposed by the Working Group. It was also accepted that the evaluation team should consist of one member from the country exercised the previous year, one member from the country which is conducting the forthcoming exercise and one member from the country conducting the exercise next year. Poland and the USSR were invited to nominate their members to the evaluation team for the exercise to be conducted in Denmark in 1991 and to submit the names of their candidates to Denmark before 30 April 1991;

Paragraph 6.8

to postpone the decision on establishing a standard on symbols;

Paragraph 6.9

to accept the use of the Bonn Agreement Manual Standard Exercise Report as a standard report of BALEX DELTA exercises on a trial basis. ./11 The standard report is attached as Annex 11 to this Report;

Paragraph 6.10

to accept the proposed checklist to be used by a Lead Country. The ./12 checklist is attached as Annex 12 to this Report. The Meeting requested the Secretariat to attach the standard report and checklist to the HELCOM Manual.

6.13 The Meeting thanked Mr. Preben Stamp for the excellent results of the Informal Working Group Meeting.

6.14 The Delegation of Denmark offered provisionally to organise a BALEX DELTA exercise on 2 October 1991 in the Bornholm Area. Combatting units from Germany, Poland and Sweden are invited to participate in the exercise.

6.15 The Delegation of Denmark introduced document CC 14/6/1 "Information on the Copenhagen Agreement Exercise on 29-30 May 1990" and informed that the major outcome of the exercise was the following:

the alarm phase was executed without any faults,
communication during the exercise was running perfectly,
as a new element within the Copenhagen Agreement Exercises a grid system was established for better control of participating units which were allocated various grid blocks. The system turned out to work very well.

6.16 The Committee took note of the information given by Denmark.

10. FINANCE, GENERAL GUIDELINES (lease, costs, etc.)

Financial impact of assistance rendered

According to HELCOM Recommendation 3/5 (Chapter 3, page 13) the Commission has recommended the Governments of the Contracting Parties to bear the costs of joint actions in accordance with the following formula, in cases where there is no agreement between them on the financial modalities governing such actions:

- in the case of one Contracting Party providing assistance at the express request of another Party the latter should be prepared to reimburse to the first the full cost of such assistance; and

- when a Party takes actions spontaneously (i.e. in the absence of an express request by another State) to prevent or control a spillage of oil or other harmful substance that Party should be prepared to bear the full costs of its action.

Guidelines for the calculation of the total costs which should be paid by the Requesting Country to the Assisting Country or Countries

According to HELCOM Recommendation 5/3 (Chapter 3, pages 18-19) the Commission has recommended that the Governments of the Contracting Parties to the Helsinki Convention should use the following guidelines when deciding on the monetary implications between the Requesting Country and the Assisting Country or Countries:

Updated, April 1985
Amendment No. 3

- a fundamental principle for the calculation of costs which should be paid by the requesting country to the assisting country or countries is that the calculation must be based on cost price;

- a country requesting assistance may withdraw its request at any time, but in that case it shall bear costs already incurred or committed by the assisting country or countries;

- an assisting country shall at any time be prepared to give the requesting country a preliminary estimation of the costs for the assistance: and

- these guidelines shall not be interpreted as in any way prejudicing the rights of a country to recover from third parties the costs of action to deal with pollution or the threat of pollution under other applicable provisions an3 rules of national and international law.

Updated, April 1984
Amendment No.1

INTRODUCTION - Volume III

The marine transport and storage of hazardous chemicals has in recent years increased greatly, and the concern for the transportation of these chemicals and their potential outflows has grown. The Baltic Sea States have therefore taken steps towards prevention and control of incidents involving hazardous chemicals in the Baltic Sea Area.

The exceptional hydrographic and ecological characteristics of the Baltic Sea and the sensitivity of its marine environment and coastal areas, threatened by accidental discharges of chemicals, require development of efficient contingency plans to respond to any possible accidents to chemical tankers. Such plans must be based on adequate information on

kinds and quantities of chemicals carried in bulk and in packaged form

risk analysis on
- the likelihood of accidents
- regional risk distribution related to kinds and quantities of chemicals carried
- potential outflow quantities

response option
- recovery methods and techniques
- measures for maintaining safety of navigation
- alerting measures for safety of adjacent populated areas
- emergency and first aid measures for strike teams

The Contracting Parties to the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1974, (Helsinki Convention), are aware of the continuously increasing safety standard of seabome chemical transportation, but nevertheless the Helsinki Commission has decided on the need for a specific document containing detailed and specific information on

the sea transport of chemicals
behaviour of chemicals if released into the sea or if packages are washed overboard
response methods in case of liquid spills and release of toxic or explosive vapour clouds.

This document has now been prepared. It has been edited as a Volume III of the Baltic Sea Area Combatting Manual with the subtitle “Response to Chemical Spills from Tankers”. The document also serves as a regional supplement to the IMO Manual on Chemical Pollution.

This Volume III is based on the principles of co-operation in combatting marine pollution as laid down in Annex VI of the Helsinki Convention. It is intended to facilitate the ability of the Contracting Parties to react on and combat spillages of harmful substances other than oil at sea.

Updated, May 1993
Amendment No. 2

Furthermore, it is the intention and the aim of Volume III to provide decision makers, national operation control authorities and on-scene coordinators with an appropriate tool to select those strategic and tactic countermeasures, which are the most effective ones, taking into account the present state of the art and local circumstances.

Active and passive countermeasures in case of a major outflow of harmful substances must be taken immediatelv to be successful as

many substances constitute a serious threat to the marine environment and related interests of Member States to the Helsinki Convention

many substances change rapidly their states of aggregation when released into the environment by evaporation and dissolution and consequently their retention times at sea.

These criteria and time limits demand a high standard of preparedness and readiness of operational control authorities and strike teams.

This Volume III of the Manual therefore contains information and knowledge about the transport of chemicals and related risks in the Baltic Sea Area, as well as suitable combatting methods edited in

Chapter 1, to be used mainly for the development of national strategies. This chapter contains general information about the transportation pattern, the related risks and outflow estimates. It also contains general information on the physical properties of the chemicals and guidance for the determination of response and combatting methods. When adding Chapter 3 into this Volume some parts of Chapter 1 were amended to cover also incidents involving packaged dangerous goods;

Chapter 2, to be used mainly by decision makers at scene and by operational control authorities. This chapter contains detailed information on the transported chemicals and their properties and the regional environmental hazards;

Chapter 3, to be used mainly for the development of national strategies. This chapter contains, in addition to Chapters 1 and 2, specific information needed for response to incidents involving dangerous packaged goods. It contains general information on the transportation pattern of packaged dangerous goods and the related risk estimation. It also contains general information on the properties of the packages and their risks of being damaged in the sea water. It describes the response and salvage methods which may be used as well as the specific information sources. The data sheets contained in Chapter 2 can, with some limitations, be used as an information source also when packaged dangerous goods are concerned.

Updated, May 1993
Amendment No. 2

Cpt. Klaus Schroh
Special Federal Unit for
Marine Pollution Control

Response Strategies - Response Techniques - Aerial Surveillance

1. Response Strategies

1.1 Abstract

It is a prerequisite for any kind of oil pollution response to have a basic knowledge on the base properties of oil, to determine the physical and chemical changes that occur when oil is spilled into the sea surface. Ageing and wheathering characteristics play a dominant role during the variations of individual appearances. Depending on these factors different response options can be choosen

- Do nothing
- mechanical recovery
- chemical treatment
- in-situ, burning
- bio-remediation

Preference should always be given to mechanical recovery, if the local surroundings and the wheather circumstances are amenable for the application of various techniques. The use of dispersants, sinking agents and absorbents has to be minimized in the Baltic, its use is subject to authorisation by competent national authorities in each individual case. In the Baltic the final option of in-situ burning has never been a realistic option particularly because this method is the most disputed one.
The effectiveness of bio-remediation makes progress but a variety of impactes influence an efficient recovery or cleaning of polluted areas.
Consequently in the Baltic mechanical recovery with adaequate techniques should always be given priority if the sea state and local obstacles do not prevent the application of this method.

1.2 Fate of Marine Oil Spills

The fate of spilled crude oil differs between the forming of a very stable water-in-oil-emulsion and a complete disappearance. The protection of individual organisms, ecological and economic resources in the vicinity of the slick and the marine environment as a whole are further factors determining the strategy with its preparedness and priorities for immediate response.

1.2.1 Properties of Oil

In considering the fate of spilled oil at sea, a distiction is frequently made between non-persistent oils, which tend to disappear rapidly from the

sea furface, and persistent oils, which in contrast dissipate more slowly and usually require a clean-up response. Non-persistent oils include gasolene, naptha, kerosene and diesel whereas most crude oils and heavy refined products have varying degrees of persistence depending on their physical properties and the size of the spill.

Crude oils of different origins have a wide range of physical and chemical properties, whereas refined products have well-defined properties irrespective of the crude oil from which they are derived.

a) Evaporation
The rate and extent of evaporation is determined primarily be the volatility of the oil. The greater the proportion of components with low boiling points the greater the evaporation. The initial spreading rate of the oil affects evaporation since the larger the surface area, the faster the light components will evaporate. Rough seas, high wind speeds and warm temperatures will also increase the rate of evaporation. In broad terms, those oil components with a boiling point below 200° C will evaporate within a period of 24 hours in temperate conditions. When exetremely volatile oils are spilled in confined areas, there may be a risk of fire and explosion.

b) Dispersion
Waves and turbulence at the sea surface act on the slick to produce droplets with a range of sizes. The rate of dispersion is largely dependent upon the nature of the oil and the sea state, proceeding most quickly in the presence of breaking waves. Slick thickness, which is related to the amount spilled and the degree of spreading, is an important factor in the rate of dispersion since smaller droplets are produced from thin films. Oils which remain fluid and can spread unhindered by other weathering processes may disperse completely in moderate sea conditions within a few days, see the Braer-incident in the Shetlands.

c) Emulsification
Many oils exhibit a tendency to absorb water to form water-in-oil-emulsions increasing the volume of pollutant by a factor of between three and four. These emulsions are often extremely viscous and, as a result, the other processes which would cause the oil to dissipate are retarded. This is the main reason for the persistence of light and medium crude oils on the sea surface. In moderate to rough sea conditions, most oils rapidly form emulsions, the stability of which is dependent on the concentration of asphaltenes. Oils with asphaltene contents greater then 0,5 % tend to form stable emulsions, often referred to as "chocolate mousse" whilst those containg less are likely to disperse.

d) Spreading

Spreading ist one of the most significant processes during the early stages of a spill. The main driving force behind the initial spreading of the oil is its weight. A large instantaneous spill will therefore spread more rapidly than a slow discharge. This gravity assisted spreading is quickly replaced by surface tension effects. During these early stages, the oil spreads as a coherent slick and the rate is influenced by the viscosity of the oil. High viscosity oils spread slowly and those spilled at temperatures below their pour point hardly spread at all. After a few hours the slick begins to break up and form narrow bands or "windrows" parallel to the wind direction.

1.3 Observation of Oil at Sea

Aerial reconnaissance is essential for an effective response to oil spills, both to facilitate the location of oil at sea and to improve the control of clean-up operations. It is necessary to locate the oil in order that timely measures may be taken to protect coastlines threatened by pollution.
The aircraft chosen for aerial observation must feature good all round visibility and carry suitable navigational aids. Over nearshore waters the flexibility of helicopters may provide an advantage, for instance, in surveying an intricate coastline with cliffs, coves and islands. However over the open sea the requirements for rapid changes in flying speed, direction and altitude are less acute and instead the speed and range of fixed-wing aircraft are generally desirable. Details see chapter 5.

It can be assumed, that nearly 90 % of the total outflow quantity of oil in case of a tanker accident cover only 10 % of the entirely contaminated sea-surface. These slick concentrations must be selected with proper remote sensing equipment, at least consisting of a side-looking-airborne radar for wide range detection and an infra-red-line-scanner for the slick analysis. In case of a spontaneous outflow e.g. with 10.000 m^3 of a North Sea Crude-oil a coverage of 25 - 50 skm can be assumed after 24 hours spreading time. Pollutions of this dimension need the aerial assistance in order to fulfil the a.m. assumption with a clean-up coverage capacity of at least 10 % of the polluted surface. For predictions of the oil spill movement it has been found empirically that floating oil will move downwind at about 3 % of the wind speed. Additional movements of oil can be superimposed in proportion to the presence of surface currents.
Annex 1 shows a table containing a Guide to the Relation between the Appearance, Thickness and Volume of Floating Oil.

2. Strategy

Highest priority must always be given to prevention of any kind of pollution or threat of pollution. Lightering operations can eliminate or minimise the risk of an outflow. If - in case of a collision or grounding - ruptured

tanks are loosing oil or further damage with outflow can be anticipated lightering operations preferably in co-operation with tug-boat assistance (grounding) should be imnediately initiated. The lightering operation must include also endangered neighbouring tanks.

2.1 The Operational Control Authority (OCA) must denominate a well trained and experienced expert, to coordinate its decisions at sea (On-scene-coordinator OSC).

Lightering capacity and tug-boat assistance must be ensured in close co-operation with tank ship owners association and salvage companies. Agreements with annexed models of charter contracts must be settled prior to eventual incidents in order to avoid wasting of valuable time when negotiating the terms and conditions of the contract(s).

2.2 The OCA with its overall responsibility for oil spill control needs a communication centre with telephone, telefax, telex and radio communicattions in order to maintain a permanent link to the OSC and preferably also to the surveillance plane or surveillance helicopter, and to a patrol ship which also should be used for other logistic support.

2.3 Pollution response at sea should always have priority in order to avoid beaching of the slick(s) or shoreline pollution.

2.4 Helcom-recommendation 11/13 on "Development of National Ability to Respond to Spillages of Oil and Other Harmful Substances" in connection with the provisional guidelines on its application forms the basis for the national preparedness with adaequate reaction at sea, details are annexed to this document, see annex 2.

2.5 If a spill ats sea has occured one has to avoid further spreading with retention booms to be deployed by tugs or auxiliary vessles; current or tug speed should not exceed 0,7 kts (0,35 m/s) otherwise the oil would escape beneath the skirt. Loss of retained oil can also be induced by turbulences along a boom.
Booms can be used as containment and deflection booms. The rapid spread of oil at sea over a large area poses the most serious problem in attempting to tow booms to contain floating oil.
In an effort to prevent spreading and maximise encounter rate, long booms of 300 m or even more in U-, V- or J-configuration may be towed using two vessels. The collection device is either towed with the boom array or preferably deployed from a third vessel behind the boom with an opened apex at the center of the U-Formation. Skimmer vessels with integrated skimmer devices like twin hull vessels, skimming catamarans using weir separation,

ships with integrated oleophilic rope or brush skimmers, ships with sweeping arms or spring sweep systems e.g. should Closely follow the towing unit with the concentrated oil.

2.6 The use of skimners in combatting oil pollution is advisable in connection with containment booms but also specialized oil recovery vessels can be mobilised for recovery actions. The specialized oil recovery vessels in general have high performance oil collection devices but the oil content of the recovered mixture - if, e.g. weir skimmer systems or sweeping arms are used - is mostly lesser than 20 %. As the gravity separation process takes hours it is necessary to install additional high performance separators in order to fill the storage tanks with separated oil.
The disadvantage of specialized recovery vessels is often their non-versatility for other task like fire-fighting or buoy-tender-tasks.
Smaller skimners like weir skimners, disk skimners, belt skimners, oleophilic rope skimners, vortex skimmers etc. in general have lower recovery performance but the oil proportion is much higher than the water contents of the recovered mixture.
The main advantage of a single or multi-vessel operation without utilization of long boom barriers ist the high flexibility of the single vessels, a higher recovery speed and in areas of widespread layers and windrows faster transfers from one recoverable slick to the other. Also, lightering operations of oil recovery vessels are much easier to manage. The classification societies have meanwhile ruled the construction of these vessels, including safety measures to avoid explosion or toxic hazards.
Combinations of hopper dredgers or buoy-tender vessels with sweeping arms in connection with brush skimners or suction pumps can significantly contribute to a reduction of maintenance and operation costs. Therefore for a tier 3 response in a major diseaster at sea at least one high performance vessel must be available to encounter immediately the spreading slick. 2 tugboats or auxiliary vessels are needed to contain or concentrate the leaking oil in case of a continuous outflow or to prevent strong slick patches from further spreading. This capacity must be widened if a grave spill has to be reacted.

2.7 The removal of oil from shorelines is usual ly carried out in two stages:

a) the primary phase, which consists of removal of floating oil and heavy contamination as soon as possible in order to avoid further pollution;

b) the final cleaning phase, which is to remove the final traces of oil and oily stains.

The Collection of stranded oil can involve pumping, mechanical or manual removal of oil or the use of specialized collection equipment.

The pumping and skimming liquid oil is the easiest way of collection. Vacuum device are the most efficient way of pumping oil because the pollutant which

generally contains debris and sand, need not come into contact with the pump mechanism. Industrial, sanitary or agricultural vacuum trucks can be used to pump oil from open water or pools provided there is good access to the beaches. The efficiency of pumping equipment may be increased by attaching a flattened (fish tail) suction head to the hose, which permits the collection of thin layers of oil. A specialized suction head may be attached to the vacuum truck to allow continuous pumping. Other portable vacuum devices, especially designed to collect oil, are now available on the market. Other pumping methods may be useful if the depth of the oil is sufficient, although the pump must have a high tolerance to solids. The troughput of such pumping devices varies from 15 m^3/day to 100 m^3/day or more.

For mechanical removal of oiled sand, depending on local conditions, various types of earth-moving machinery such as graders, bulldozers, scrapers and front-end loaders can be used. On large accessible beaches, such machines can handle up to 250 m^3/day of oiled sand, but selectivity is low, typically 1 % to 5 % of oil in sand, especially on thin layers of oil. Furthermore, the use of these heavy machines can result in the mixing of the oil into the beach. Wherever possible the use of tracked vehicles should be avoided and care must be exercised to ensure that excessive removal of sand does not result in beach erosion.

This method is not recommended for senstitive areas, but might be applicable in the case of heavy pollution of recreational beaches.

3. Aerial Surveillance

The growing importance of aerial surveillance systems was recognised in the memberstates of the Helsinki Commission with the adoption of a relevant Helcom recommendation in which the Contracting Parties are invited to introduce airborne surveillance with remote sensing equipment in their surveillance of the Baltic as soon as possible.

3.1 The requirements to such a system can be described as follows:
- detection of oil spills within a wide area on the surface
- unambiguous confirmation of the presence of an oil spill
- assessment of the thickness and thickness variations of the pollutant and hence the amount of oil spill
- identification of the source of pollution and classification * of the oil discharged
- mapping the extent of the spill or pollution
- provision of precise navigational information for spill and source location and the positioning of clean up vessels

* still part of research programmes

3.2 A remote sensing system for installation in a fixed wing aircraft should comprise the following sensors and documentation equipment:

SLAR (Side Looking Airborne Radar)

For the intial detection of oil pollution, a SLAR system is a basic demand for the aircraft: Hence the detection of oil slicks-on the surface of the sea is achieved by imaging the effect of changing sea clutters. The signal of the SLAR is digitally stored and then presented on a terminal screen. Detection areas with a width of 20/40 km should be selected on both sides of the aircraft (oil generally in the 20-km range, ships up to 40 km).

IR/UV Scanner (infrared/ultraviolet Sensor)

The IR/UV scanner is intended for pollution analysis at short ranges. The UV-measuring system is employed during daylight for the examination of oil pollutions in the wake of ships, as well as for determining oil leaks in the event of accidents. The sensors measure in the infrared (IR) and ultraviolet (UV) wave-range. The signals are digitally stored, and can be presented on the terminal screen either individually or together.

Microwave Radiometer (MWR)

The operational emphasis of the MWR-scanner is given to the registration of large oil quantities, e.g. in the event of accidents. This scanner is a very important'supplement to the IR/UV-scanner, because the operation is also possible by night and during adverse weather conditions. The scanner measures the emitted radiation. For the purpose of a more accurate evaluation, the results should be compared with the IR-scanner image. The signals from the MWR-scanner are digitalized and then presented in colours as oil-layer thickness of between 0.2 (0.05)* 4 mm.

* new development in Germany.

Data processing and Storage

The control and evaluation of the sensor signals is achived using a data processing system. The signals from the sensors SLAR, IR/UV and MWR, as well as from a TV-camera with light-amplifier, can be presented selectively and in certain combinations on a TV-screen.

Navigation data are mostly based on DECCA-systems. In a navigation-computer, the DECCA position-lines are converted into geographic coordinates.

Cameras

For the identification of ships, a tilting TV-camera with light amplifier (LLL-TV-Camera) should be installed. The camera also enables the identification of ships by night. The individual pictures of the TV-camera are digitally stored and can be presented on the terminal screen and recorded on a video recorder.

For the identification of oil pollution and ships during daylight, a small handheld camera with a data-feed-in-capability is installed.

Communication Equipment

For radio communication with the ships and land-based operations units, com-

munication equipment for the various frequency ranges are installed (HF, VHF/UHF and AM/FM).

Aerial surveillance results obtained during regular surveillance flights in the German responsibility area are annexed to this paper. It has to be mentioned, that after the unification of both parts of Germany the area was widenend and the number of flights consequently was intensified. But the relation between flight hours and observed pollutions in 1992 was discouraging with a major pollution proportion than in former years.

Further details to the REPONSE STRATEGY, the RESPONSE TECHNIQUES and to the issue of AERIAL SURVEILLANCE will be presented during the Riga Seminar on the 3rd of September.

A Guide to the Relationship between the Appearance, Thickness and Volume of Floating Oil

The figures in the table and the relationship - colour versus volume - up to code 5 were derived from the results of sea exercises with controlled oil discharges. Beyond that the relationship emerges from the experience of the International Tanker Owners Pollution Federation (ITOPF) and oil-spill survey teams.

Code	Appearance/Colour	Approximate thickness, microns	Approximate Volume m3/km2
1	silvery	0,02-0,05	0
2	grey	0,1	0,1
3	rainbow	0,3	0,3
4	blue	1,0	1
5	blue/brown	5,0	5
6	brown/black	15-25	15-25
7	dark brown/black	> 100	> 100
	brown/orange mousse	see note	

Note:

A brown/orange mousse shows the presence of water-in-oil emulsion. While the thickness is usually l-4 mm, it may even be higher. The percentage of oil in the emulsion can only be assessed with samples. The presence of mousse, however, shows a very high quantity of oil which would, in the case of discharges dealt with in this Manual, correspond to an exceptionally large discharge.

1) ITOPF 1981. Aerial observation of oil at sea. The International Tanker Owners Polllution Federation Ltd., Technical Information Paper 1, London.

PROVISIONAL GUIDELINES FOR APPLYING **HELCOM RECOMMENDATION 11/13** ON DEVELOPMENT OF NATIONAL ABILITY TO RESPOND TO SPILLAGES OF OIL AND OTHER **HARMFUL** SUBSTANCES

1. Introduction

The purpose of these guidelines is to specify more detailed Requirements to Recommendation 11/13 of the Helsinki Commission Manual on Co-operation in Combatting Marine Pollution.

It must be realised that due to adverse weather conditions and probably local limitations the demanded operational and technical means can not always ensure a successful cleaning operation at sea.

2. Spill Spreading

Oil spill spreading is a very fast process calling for immediate reactions with a maximum of recovery vessels in order to use effectively the final spreading phase with appropriate layer thicknesses. Experiences have shown that the key of effective recovery lies in the first 24 hours after a spontaneous outflow. The layer thickness in relation to the elapsed time and the potential surface sweeping performance must be used for the definition of the needed capacity, taking into account weathering of the oil, kind and viscosity, sea state and wind influences.

Aerial reconnaissance flights, especially with helicopters, are hereby a very helpful tool to position the combatting units in those areas, where most of the outflow is concentrated.

3. Skimmer Performance

Based on a certain outflow quantity one might use the skimmer-performances per hour in order to quantify the recovery capacity per day or within two days, but producers figures are mostly based on extremely favourable circumstances with unrealistic layer thicknesses assuming also a calm sea surface. Those figures therefore are neither comparable nor reliable as the Baltic Sea States operate various skimmer systems.

4. Containment Booms

A provision of having available a certain length of containment booms could be an appropriate part of the specified equipment. The length of the boom capacity could be orientated on the fact that e.g. a spill caused by 10.000 cbm will cover after 24 hours an area of 30-60 sqkm. But the main part of the total outflow is concentrated mostly on an area covering only 10 per cent of the whole contaminated surface. Assuming that this slick concentration is drifting within the down-wind side of the moving slick then a total length of 2000 m is needed to ensure that most of the slick concentration is surrounded.

But those countries which have based their recovery capacity on self-propelled skimmer ships with e.g. sweeping arms/spring sweep systems or combination of deflecting containment booms with skimmer devices in the apex of the V-shape may prefer a higher sweeping capacity - see 5.2 - which can compensate large lengths of high sea booms in combination with various skimmer types.

Consequently, the following minimum requirements are demanded for

containment sea boom lengths, with auxiliary vessels to launch booms and deploy skimmers
autonomous self driven skimmer ships with the definition of cleaning performance per day in sskm
performance per day of adhesion/suction devices like belt disc skimmer/ weir and vortex skimmers.

5. Capacities to **recover** various persistent oil types

The Minimum Requirements are as follows:

5.1 2000 m high sea booms *)

5.2 2,5 sqkm of sweeping performance. The calculated area is hereby based on a working speed of 1-2 knots of the sweeping or skimming vessels. A sweeping area of 4,5 sqkm has to be fulfilled by those countries which mainly use autonomous driven skimmer ships. The total boom length of 2000 m can be diminished to 1200 m if the sweeping capacity is considerably greater.

5.3 6 high performance sea skimmers with full sets of auxiliary equipment

5.4 Sufficient storage tank capacity should be available at sea for continuous operations. The land-based disposal arrangements of the recovered mixture close to the potential sea areas must also be ensured.

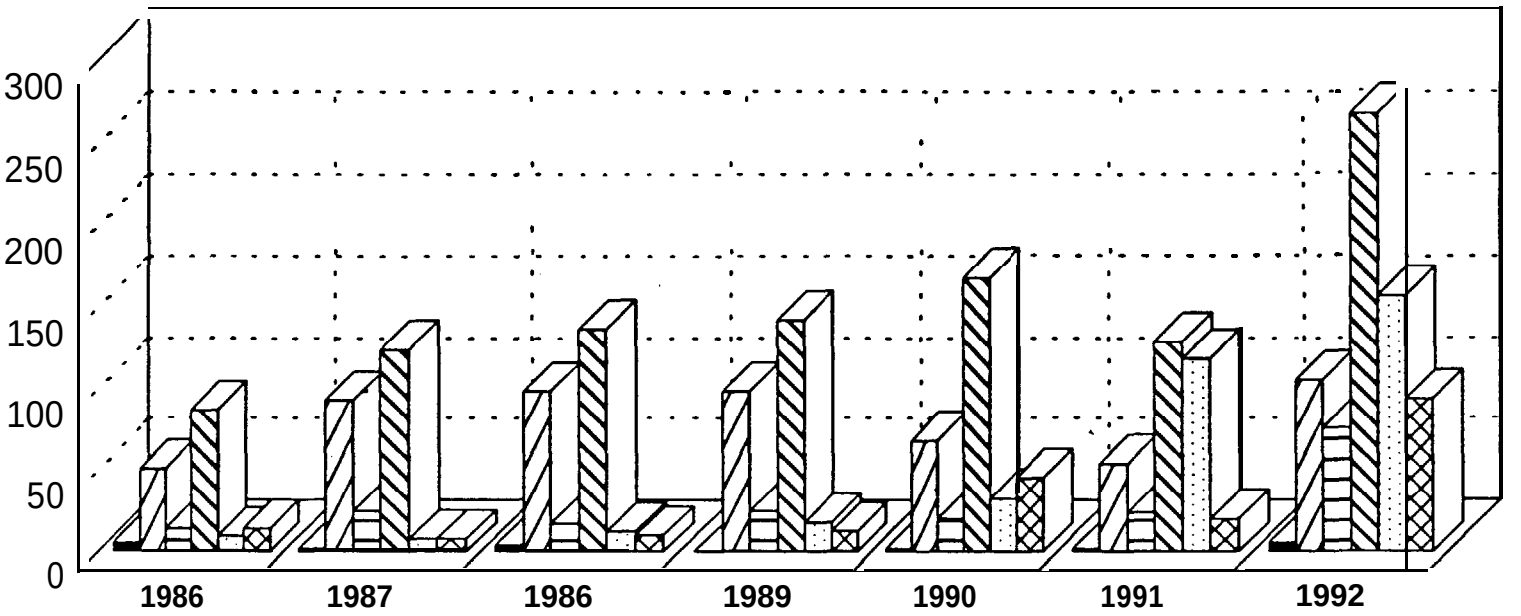
Those countries which cannot fulfil1 presently the provisions to sub-para 5.1 and 5.2 must ensure that until the target date 31.01.1992 these requirements have to be fulfilled by bilateral negotiations with neighbouring states. A length of 1200 m high sea booms is the minimum demand.

6. Detailed requirements to the recovery/response of chemicals will be supplemented later when new developments and experiences are gained.

*) underwater skirts must have a depth of at least 50 cm

Aerial Surveillance Results 1986 bis 1992

Baltic - Sea



Ident.Polluter	5	1	4	0	1	1	5
Numb.of Flights	51	93	98	98	68	54	105
Pollutions Obs.	14	25	17	25	20	24	76
Flight hours	87	124	137	142	168	129	267
Covered Area(km2)	9	8	12	18	33	119	157
Est.Quantities (m3)	14	8	10	12	45	20	94

■ Ident.Polluter ❑ Numb.of Flights ❑ Pollutions Obs. ▨ Flight hours ⬚ Covered Area(km2) ❑ Est.Quantities (m3)

Aufgestellt: Bustorff/Schmidt15.01.93

HELCOM SEMINAR for experts from Estonia, Latvia, Lithuania and Russia on the implementation of HELCOM arrangements, other international instruments and related matters

Riga, Latvia
30 August – 3 September 1993

THE FINNISH APPROACH TO IMPLEMENT THE INTERNATIONAL PROVISIONS CONCERNING THE COMBATTING OF MARINE POLLUTION INCIDENTS

Olli Pahkala
Chief inspector
Ministry of the Environment, Finland

1. GENERAL

The basic principles for the ability to respond oil or chemical spills in Finland are as follows:

- our costal waters with their extensive archipelagoes and long sea routes are very difficult to navigate;
- considerable amount on oil and other hazardous chemicals are transported to or from Finnish harbours;
- the nature in the archipelago on along the coastline is unique and very vulnerable;
- quick response to every oil spill is necessary everywhere along the coastline as is recovery of oil from the sea in order to protect the shoreline against oil pollution.

Oil pollution preparedness and response is a shared responsibility between the government authorities and the municipal authorities. Oil refineries, harbours and terminals also have to establish a limited oil combatting ability of their own.

The Ministry of the Environment has the supreme responsibility for the management and supervision of the oil pollution response. The National Board of Waters and the Environment, operating under the Ministry, is the competent government oil pollution combating authority.

The government authorities have at present nine specialized oil combatting vessels. These vessels are multi-purpose vessels used at normal times as supply vessels by the Navy or as sea route maintenance vessels by the maritime authorities. The state-owned oil combatting equipment and material are stored in 13 depots along the coastline. All the main coastal cities have their own oil combatting and fire fighting vessels and depots for their combatting equipment and material.

2. INTERNATIONAL LEGAL FRAMEWORK FOR COOPERATION IN COMBATTING MARINE POLLUTION INCIDENTS

The Helsinki Convention is not the only international instrument which have influenced the Finnish legislation, arrangements and policies in the field of combatting marine pollution. Below is described how these other instruments have nationally been implemented and taken into account.

2.1 Global instruments

The IMO conventions like SOLAS and MARPOL 73/78[1] and thereto related IMO Codes and resolutions provide bases of the maritime safety regulation in Finland, i.e prevention of operational and accidental discharges from ships. This mater has been dealt with in Maritime Session of the seminar.

The internationally adopted liability and compensation scheme e.g CLC and Fund Conventions[2] are bases of our national legislation. The ratification of 82/92 Protocols related to these instruments is under preparation.

Finland has ratified the 1990 OPRC Convention[3] which provides principles and procedures for global cooperation and assistance in case of a major oil pollution incident.

Provisions of the 1969 Intervention Convention and 1973 Intervention Protocol[4] have been incorporated into Finnish legislation and they legalize response action to be taken also outside the territorial waters and onboard ship.

---

[1]) SOLAS = the International Convention on the Safety of the Life at Sea, 1974 (amended afterwards several times)

MARPOL 73/78 = the International Convention for the Prevention of Pollution from Ships, 1973, as modified by 1978 Protocol (amended afterwards several times)

[2] CLC = the International Convention on Civil Liability for Oil Pollution Damage, 1969

FUND = the International Convention on the establishment of an international Fund for Compensation for Oil Pollution Damage

[3] OPRC = the International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990

[4] The International Convention related to intervention on the high seas in cases of oil pollution casualties, 1969

Protocol related to Intervention on High Seas in Cases of Pollution by Substances other than Oil, 1973

Finland has not yet ratified the new 1989 Salvage Convention. The private salvage companies apply, however, the new 1989 Lloyds Open Form in their contracts.

2.2. Regional instruments

The provisions of the 1974 Helsinki Convention on the Protection of the Marine Environment of the Baltic Sea Area, and in the future the new 1992 convention, Annex VI to the old convention and Annex VII to the new one as well as HELCOM Manual on Cooperation in Combatting Marine Pollution have rather been taken into account in the practical work than been incorporated into the legislation. How this has been done will be highlighted later.

Copenhagen Agreement on the cooperation between Denmark, Finland, (Iceland), Norway and Sweden originates from the year 1970 and new agreement has been signed on 29 March 1993. The Nordic cooperation based on this agreement has been very close and effective, as all Nordic cooperation is. Exchange of results of research and development work and experiences from the use of various combatting means and methods have been greatly influenced many practical solutions in Finland. The considerations and conclusions within the Nordic cooperation have had an essential impact in the Finnish national oil combatting policy.

2.3 Bilateral arrangements

The Copenhagen Agreement functions also as a bilateral agreement between Finland and Sweden. The new 1993 Agreement allows even for direct contacts even at district and local level; two operational exercises at district level are organized annually.

The bilateral agreement with Soviet Union from 1989 is today applicable between Finland and the Russian Federation. It is based on the general provisions of the Helsinki Convention and includes detailed provisions for direct bilateral cooperation. Today it covers geographically only the eastmost part of the Gulf of Finland

A bilateral agreement with Estonia is under negotiation; it will be based on the approach used in the agreement with the former Soviet Union. A protocol on the transitional arrangement will be connected to the agreement.

3. NATIONAL LEGISLATION AND ARRANGEMENTS CONCERNING COMBATTING MARINE POLLUTION

3.1 Legislation

The Act on Prevention of Pollution from Ships, the Act on Combatting Oil Pollution on Land and the Degree on Combatting Oil Pollution Incidents include the regulations related to the contingency planing, duties of various authorities in this planing as well as in actual combatting actions. The Act and Degree on the Prevention of Pollution from Ships include also the stipulations related to national implementation of the provisions of MARPOL 73/78 Convention.

The Act on the Liability for Oil Pollution from Ships includes stipulations concerning national implementation of the 1969 International Convention related to the Civil Liability for Oil Pollution damage (CLC Convention). The main body of the act applies to the oil pollution caused by discharge of persistent oil carried in bulk by an oil tanker. Some sections of the Act apply, however, to other oil pollution incidents caused by other ships or by non-persistent oil (cf. section 23.2 of the Oil Pollution Liability Act).

Today the legislation described above covers only oil pollution incidents. A couple of years ago a national ad hoc commission on combatting of and compensation for marine pollution incidents gave it report. The report includes inter alia proposals for the expansion of the present oil pollution combatting and compensation regime to cover also marine pollution incidents involving hazardous chemicals. These proposals are still under consideration.

3.2 Organization

Todays' organization in Finland is based on historical events and past changes in the central state administration. The National Board of Navigation was the competent authority until 1983 when this tasks was transferred to the Ministry of the Environment established that year. When the old National Board of Waters was reorganized and transferred under the Ministry of the Environment one of its new tasks was the responsibility for the overall operational arrangement and development of response to oil pollution incidents.

So today in Finland the environment protection authorities carry out duties related to response to oil pollution incidents. The Ministry of the Environment is responsible for the supreme management and supervision. The overall arrangement and development of oil pollution preparedness and response is the charge of the National Board of Waters and the Environment. In addition, several other state authorities such as the Defence Forces including the Navy, the Frontier Guard including the Coast Guards, the National Board of Navigation and Marine Research Institute shall cooperate with National Board of Waters and the Environment

and provide it with necessary resources and other kind of assistance.

Each municipality shall, in its own area, see to the preparedness for and response to oil pollution incidents. According to the normal Finnish legislative praxis it is up to the municipality it self to decide which of its organizations are in charge; normally fire brigades/rescue services are nominated for this purpose.

In minor oil spills the municipality will take care of necessary response actions alone or together with its neighboring municipalities. It is also entitled to get assistance for state authorities, if needed.

In major oil spills or spills at open sea the National Board of Waters and the Environment (NBWE) shall arrange response actions and appoint a supreme operational commander (SOC). In these cases the municipal response forces as well as forces from the other state authorities shall operate under the command of the appointed SOC.

3.3 Material ability

Finland has nine state owned oil recovery vessel. They are all multi purpose vessel used normally for other purposes. Two largest vessels, orv HYLJE and orv HALLI, are operated by the Navy and used as supply vessels and coastal tankers. The seven others are operated by the National Board of Navigation and used for sea route maintenance works. The Provincial Government of Åland has its own oil recovery vessel. The coastal towns and municipalities have together c. 50 oil combatting boats (length over 10 m) nine of which are oil recovery vessels (length up to 18 m).

The National Board of Waters and the Environment maintains 13 stockpiles where state own combatting equipment and material are stored. Coastal towns and municipalities have their own stores for combatting material.

It can be calculated that the state has used FIM 130 M for acquisition of oil combatting vessels and FIM 30 M for other combatting equipment and material between 1976 – 1992. The sum includes the total costs of purchase the multi-purpose vessels. The municipalities have during the same period used totally FIM 125 M for acquisition of combatting boats, equipment and material.

At present two new projects are under way. The Frontier Guard has ordered two sea patrol airplanes from Dornier. One of them will carry onboard remote sensing equipment paid from the budget of the National Board of Waters and the Environment. The Frontier Guard has also ordered a new off-shore patrol vessel which will be equipped for the combatting of oil and chemical spills. The costs of the combating arrangements will also in this case be paid by the National Board of Waters and the Environment.

4. THE IMPORTANCE OF THE HELSINKI CONVENTION AND HELCOM RECOMMENDATIONs IN THE FINNISH POLICY ON COMBATTING MARINE POLLUTION INCIDENTS

4.1 Provisions of the Convention

The most important obligation is Regulation 2 of Annex VI concerning the requirement to the Contracting parties to maintain adequate national ability. This obligation has been transferred into the main body of the new 1992 Convention (cf. article 12). As far as oil is concerned Finland has sufficient ability both in coastal waters and at open sea. The ability to combatt chemical spills is still under development although municipal fire brigades in towns with chemical harbours have a limited ability.

Regulation 3 requires surveillance to be conducted within the response region. Today Finland has available only limited surveillance capability based on optical means. A new sea surveillance aircraft equipped with remote sensing system will be delivered by the end of 1994.

Regulation 8 includes on one hand possibility to request and get assistance and on other hand obligation to render assistance in case of a major pollution incidents. The possibility to get assistance is important when considering how large ability is needed for worst cases, i.e. one can rely on the assistance from neighboring states in adverse accidents.

Finland has ability to send one or more vessels (strike teams) as well as equipment separately to assist other baltic Sea States. Finland assisted Sweden by oil combatting vessel HALL1 in the Volgoneft operation as well as Estonia by two vessels and one rescue helicopter in KIHNU operation.

Regulation 7 requests the Contracting Parties to agree on the delimitations of response regions for combatting marine pollution incidents. Finland has agreements with Sweden and with the former Soviet Union with the exception of a little sea are in the vicinity of Bogskär in the northern part of the Baltic Proper. The forthcoming bilateral cooperation agreement with Estonia will include also a provision on the delimitation of response regions.

Regulation 2 of the Annex VII to the 1992 Convention requires drawing of national contingency plan. Finland has not a singe overall plan but several regional plans for each of the five coastal provinces. In addition, every municipality shall have a contingency plan of its own.

The requirement of a ship borne oil pollution emergency plan (cf. Regulation 6.1 and Regulation 26 of Annex I to MARPOL 73/78 – Convention) is included into the Finnish legislation from 4 April 1993.

4.2 Provisions of certain HELCOM Recommendations

Recommendation 11/13 on National ability includes more detailed requirements for national ability. As described above the ability to combat oil pollution incidents can be regarded to be satisfactory. The locations of multi-purpose vessels along the coastline are, however, not the best possible from the combating ability point of view. The specific requirements are fulfilled as follows:

* first response units leaving their base within two hours are the Coast Guard patrol vessels and the municipal oil recovery vessels; one of the two large oil recovery vessel is always in four hours readiness during the sailing period:

* state own oil recovery vessels can theoretically reach any place in the central and western Gulf of Finland, in Archipelago Sea and around Kvargen in the central part of the Gulf of Bothnia within six hours:

* full scale response action can be guaranteed almost in the same sea areas within twelve hours:

* oil recovery vessels, especially the two largest, have tank capacity which can be utilized in lightening operations. It is, however, limited if contents of several tanks of a large oil tanker should be transferred.

The provisions of Recommendation 1/8 on the use of dispersant (see also Regulation 7.2.b of Annex VII of the new Convention) are incorporated into the decree on combatting oil pollution incidents. This regulation states that only chemicals approved by the National Board of Waters and the Environment may be used and that the National Board shall give its permit in each individual case.

The requirements as set out in Recommendation 1/9 on the Facilitation of Border Passage (see also Regulation 8.2 in the new annex VII) is taken into account in the decree on the control of the national territory. It includes special provisions for permits and border passage of state vessels in emergency situations. The Finnish authority requesting assistance will also take care of the permits required.

As set out in Recommendation 12/6 on the development and use of oil drift forecasting Finland has completed a three year development project and today operational oil drift forecasting models cover several parts of the coast.

The obligations as set out in Recommendation 12/7 on special cooperation in chemical accidents can be fulfilled only partly because Finland has not yet the necessary legislative and material bases for combatting chemical accidents at sea. Contacts to the main chemical harbours and owners of chemical tankers have been established.

Recommendation 12/9 on Follow-up Studies was prepared by HELCOM Combatting Committee and Finland was the Lead-Country. The guidelines related to the recommendation are

based greatly on those experiences when the consequences of major oil accidents have in past been investigated in Finland.

The Environmental Research Laboratory of the National Board of Waters and the Environment has recently made arrangements which will guaranteed that necessary biological and chemical follow-up studies can be initiated even outside normal working hours.

5. NATIONAL OIL POLLUTION COMPENSATION FUND

In this connection one special Finnish solution is worth mentioning. Finland has a National Oil Pollution Compensation Fund established and regulated by the Act and Decree on the Oil Pollution Compensation Fund.

Compensations are granted out of the Fund based on the provisions in various sections of the Act on Prevention of Pollution from Ships and the Act on Combatting Oil Pollution on Land. Compensation will be paid to those suffering damages from oil pollution, as well as to the combatting authorities for the costs of response actions. If the Fund compensates the damages and the costs of response operations, the right to compensations from the party responsible for the pollution passes to the State.

In addition the local authorities (= municipalities) are entitled to a full compensation from the Fund to purchase combatting equipment as well as for the maintenance cost of the local preparedness in accordance with the ratified municipal contingency plan.

The municipalities have been granted compensations for the acquisition costs from the Fund during the 80's ca. FIM 8 – 15 Millions per year (ca. USD 1,5 – 2,5 M) and this have made possible the resent good municipal ability level. After the 1984 amendment of the Acts the State can receive compensation from the Fund for the costs of purchasing of combatting vessels and equipment.

The capital of the Fund is collected by levying Oil Pollution Protection Charge of FIM 2,20 per ton of oil imported into or transported through Finland (c. USD 0.4). A double charge (FIM 4,40 = USD 0,8) shall be paid if the oil is transported in a tanker not fitted with a double bottom over the entire cargo hold (cf. section 2.1 of the Fund Act). The total amount collected into the Fund have been c. FIM 40 million per year after the latest amendment in 1989 (c. USD 7 M) and normally the compensation paid from the Fund is of the same order.

ANNEX 1

LIST OF PARTICIPANTS

CHAIRMEN AND SPEAKERS

Chairman of the Helsinki Commission

Mr. Fleming Otzen
Ministry of the Environment
Danish Environmental Protection Agency
S trandgade 29
DK- 140 1 COPENHAGEN K
Denmark

telephone + 45-32-660 100
telefax + 45-32-660 479
telex + 31209 miljoe dk

Chairman of the HELCOM Programme Implementation Task Force (HELCOM PITF)

Mr. Göte Svenson
Ministry for Foreign Affairs
Box 16121
S-103 23 STOCKHOLM
Sweden

telephone + 46-8-786 6816
telefax + 46-8-723 1176

Chairman of the Environment Committee (EC)

Mr. Niels Peter Riihl
Federal Maritime and Hydrographic Agency
Bernhard-Nocht-Strasse 78
D-20305 HAMBURG
Germany

telephone + 49-40-3 190 3000
telefax + 49-40-3 190 5000
telex + 211138 bsh hh d

Chairman of the Maritime Committee (MC)

Mr. Peter Ehlers
Federal Maritime and Hydrographic Agency
Bernhard-Nocht-Strasse 78
D-20305 HAMBURG
Germany

telephone + 49-40-3190 1000
telefax + 49-40-3 190 5000
telex + 211138 bsh hh d

Chairman of the Technological Committee (TC)

Mr. Tapani Kohonen
Ministry of the Environment
P.O. Box 399
FIN-00 12 1 HELSINKI
Finland

telephone + 358-O-1991 1
telefax + 358-O-1991 499
telex + 123717 ymin sf

Chairman of the Combatting Committee (CC)

Mr. Olli Pahkala	telephone	+ 358-O-1991 253
Ministry of the Environment	telefax	+ 358-O-1991 399
P.O. Box 399	telex	+ 123717 ymin sf
FIN-00121 HELSINKI		
Finland		

Mr. Pertti Harvola	telephone	+ 358-O-1341 5701
Ministry for Foreign Affairs	telefax	+ 358-o-1341 5707
Legal Department		
P.O. Box 176		
FIN-00161 HELSINKI		
Finland		

Mr. Harro Pitkänen	telephone	+ 358-o-1800 341
Nordic Environment Finance Corporation	telefax	+ 358-O-630 976
NEFCO		
PL 249		
FIN-00171 HELSINKI		
Finland		

Mr. Peteris Zilgalvis	telephone	+ 371-2-364 912
The World Bank	telefax	+ 371-2-8828 058
Brivibas 148 A, 5th floor		
RIGA		
Latvia		

	telephone	+ 45-46-301 200
Mr. Niels Z. Heidam	telefax	+ 45-46-301 114
Chairman of EC EGAP		
National Environmental Research Institute		
Fredriksborgvej 399		
DK-4000 ROSKILDE		
Denmark		

Mr. Hartmut Nies	telephone	+ 49-40-3190 3320
Chairman of EC MORS	telefax	+ 49-40-3 190 5033
Federal Maritime and Hydrographic Agency		
P.O. Box 30 12 20		
D-20305 HAMBURG		
Germany		

Mr. Sverker Evans	telephone	+ 46-8-799 1000
Swedish Environmental Protection Agency	telefax	+ 46-8-
S-171 85 SOLNA		
Sweden		

Ms. Liisa Tuominen-Roto National Board of Waters and the Environment Environment Data Centre P.O. Box 250 FIN-00101 HELSINKI Finland	telephone telefax	+ 358-O-73 141 + 358-O-7314 4289
Ms. Pirjo Sutela Technical Research Centre of Finland Information Service P.O. Box 42 FIN-02151 ESPOO Finland	telephone telefax	+ 358-O-456 1 + 358-O-4564 374
Mr. Feodor Kozak United Nations Environment Programme (UNEP) P.O. Box 30552 NAIROBI Kenya	telephone telefax telex	+ 254-2-623 270 + 254-2-226 949 or + 254-2-226 890 + 22068 unep ke
Mr. Oleg Khalimonov International Maritime Organization 4 Albert Embankment LONDON SE1 7SR United Kingdom	telephpone telefax telex	+ 44-71-735 7611 + 44-71-587 3210 + 23588
Mr. Jukka Häkämies National Board of Navigation P.O. Box 158 FIN-00141 HELSINKI Finland	telephone telefax telex	+ 358-o-18081 + 358-o-1808 500 + 125963 mkos sf
Mr. Henk Langenberg Ministry of Transport, Public Works and Water Management (DGSM) P.O. Box 5817 2280 HV RIJSVIK The Netherlands	telephone telefax	+ 3 l-70-3955 534 + 3 l-70-3996 274
Mr. John Østergaard (Vice-Chairman of MC) Ministry of the Environment Danish Environmental Protection Agency Strandgade 29 DK-1401 COPENHAGEN K Denmark	telephone telefax telex	+ 45-31-578 310 + 45-3 l-572 449 + 31209 miljoe dk

Mr. Bernd Mehlhorn
(Chairman of TC POINT)
Federal Environmental Agency
P.O. Box 33 00 22
D-14191 BERLIN
Germany

telephone + 49-30-8903 2206
telefax + 49-30-8903 2285
telex + 183756

Ms. Margareta Stackerud
(Chairman of TC DIFF)
Swedish Environmental Protection Agency
S-171 85 SOLNA
Sweden

telephone + 46-8-799 1618
telefax + 46-8-989 902
telex + 11131 environ s

Mr. Ain Lääne
(Vice-Chairman of TC)
Tallinn Technical Unversity
Järvevana tee 5
EE-0 100 TALLINN
Estonia

telephone + 372-2-431 244
telefax + 372-2-532 446

Mr. Uwe Schell
Ministerium für Natur, Umwelt und Landesentwicklung
P.O. Box 6209
D-241 23 KIEL
Germany

telephone + 49-43 l-2 19 345
telefax + 49-431-219 239

Mr. Hans Colind Hansen
Danish Environmental Protection Agency
Strandgade 29
DK-1401 COPENHAGEN K
Denmark

telephone + 45-32-660 100
telefax + 45-32-660 479
telex + 31209 miljoe dk

Ms. Emelie Enckell
National Board of Waters and the Environment
P.O. Box 250
FIN-00 10 1 HELSINKI
Finland

telephone + 358-o-4028 1
telefax + 358-O-6951 326
telex + 126086 vyh

Ms. Mirja Siltanen
Advisory Board of Marine Environment
Ministry of the Environment
P.O. Box 399
FIN-00121 HELSINKI
Finland

telephone + 358-O-1991 1
telefax + 358-O-1991 399
telex + 123717 ymin sf

Mr. Piotr Sroczynski	telephone	+ 48-58-319 123
Ministry of Environmental Protection, Natural Resources and Forestry	telefax	+ 48-58-317 637 or + 48-58-310 917
24 Dlugi Targ St. 80-828 GDANSK Poland	telex	+ 0512332 pnzs pl
Ms. Ulla-Britta Fallenius	telephone	+ 46-8-799 1000
(Vice-Chairman of TC)	telefax	+ 46-8-292 382
Swedish Environmental Protection Agency S-171 85 SOLNA Sweden	telex	+ 11131 environ s
Sally Broadley	telephone	+ 44-7 l-582 2606
International Oil Pollution Compensation Fund	telefax	+ 44-7 l-735 0326
4 Albert Embankment LONDON SE1 7SR United Kingdom	telex	+ 23588 imoldng
Mr. Thomas Fagö	telephone	+ 46-455-53455
Swedish Coast Guard Headquarters	telefax	+ 46-455-1052 1
Stumholmen S-371 23 KARLSKRONA Sweden	telex	+ 43268 coastg s
Mr. Dan Thorell	telephone	+ 46-455-53400
Swedish Coast Guard Headquarters	telefax	+ 46-455-10521
Stumholmen S-371 23 KARLSKRONA Sweden	telex	+ 43268 coastg s
Mr. Klaus Schroh	telephone	+ 49-472 l-106 480
Special Federal Unit for Marine Pollution	telefax	+ 49-472 l-106 404
P.O. Box 766 D-2190 CUXHAVEN Germany	telex	+ 232263 zmk cxd

Estonia

Mr. Harri Jankovski
Estonian Marine Institute
Academy of Sciences of Estonia
1 Paldiski Road
EE-003 1 TALLINN

Ms. Svetlana Kaputerko
Estonian Metorological and Hydrological Institute
Toom-Kooli 9
EE-0 103 TALLINN

Mr. Tarmo Kouts
Estonian Metorological and Hydrological Institute
Liivalaia 9
EE-0 106 TALLINN

Mr. Andres Kratovits
Ministry of the Environment of Estonia
Toompuiestee 24
EE-0100 TALLINN

Mr. Toomas Liidja
Ministry of the Environment of Estonia
Marja 4d
EE-0 100 TALLINN

Mr. Harry Liiv
Ministry of the Environment of Estonia
Toompuiestee 24
EE-0100 TALLINN

Mr. Olev Luhtein
Estonian State Sea Inspection Office
Marja 4d
EE-0 100 TALLINN

Mr. Peeter Marksoo
Ministry of the Environment of Estonia
Toompuiestee 24
EE-0100 TALLINN

Mr. Vello Muru
Estonian National Maritime Board
13 Tartu Street
EE-0 105 TALLINN

Mr. Kaarli Noor
Estonian National Maritime Board
Viru Street 9
EE-0100 TALLINN

Mr. Evald Ojaveer
Estonian Marine Institute
Paldiski mnt. 1
EE-003 1 TALLINN

Mr. Sven Otsmaa
Environmental Board
Tallinn Municipality
Sulevimägi 10
EE-0001 TALLINN

Mr. Kalle Pedak
Estonian National Maritime Board
Viru Street 9
EE-0100 TALLINN

Mr. Heino Pihel
Estonian Shipping Co.
Bulvar Estonia 3/5
TALLINN

Ms. Mare Pärnapuu
Tallinn Technical University
Institute of Environmental Protection Technology
Järvevana tee 5
EE-0001 TALLINN

Ms. Tiiu Raia
Ministry of the Environment of Estonia
Toompuiestee 24
EE-0 100 TALLINN

Mr. Rein Ratas
Ministry of the Environment of Estonia
Toompuiestee 24
EE-0100 TALLINN

Mr. Uku Tiik
Estonian Maritime Board
13 Tartu Street
EE-0105 TALLINN

Mr. Arvo Veskimets
Estonian National Maritime Board
Viru Street 9
EE-0100 TALLINN

Mr. Ringolds Arnitis
State of Plant Protection Station
2 Republic Sq.
LV-1981 RIGA

Ms. Gunta Avotina
Latvian Republic Environmental Protection Committee
25 Peldu Street
LV-1494 RIGA

Ms. Astrida Baltalksne
Department of Environmental Protection of Riga City
Valdemara Street 3
LV-1010 RIGA

Mr. Juris Baranovskis
Ogre Regional Environment Protection Committee
Kranciema No. 1
OGRE

Ms. Biruta Belicka
Analytical and Information Centre
Environmental and Regional Development Ministry
5 Osu Street
LV-20 15 JŪRMALA

Mr. Martins Belickis
Analytics and Information Centre
2 Straumes street
LV-2015 JŪRMALA

Mr. Arkady Berzins
Latvian Ministry of Industry and Energetics
1 Smilshu Street
LV- 1980 RIG A

Mr. Zigfrids Bruvers
Ministry of the Environment and Regional Development
25 Peldu Street
LV- 1494 RIGA

Ms. Vija Bute
Analytical and Information Centre
Environmental and Regional Development Ministry
5 Osu Street
LV-2015 JŪRMALA

Ms. Lidija Dakshe
Latvian Hydrometeorological Agency
19 Kr. Valdemara Street
LV-1010 RIGA

Mr. Guntis Drunka
Ministry of the Environment and Regional Development
25 Peldu Street
LV- 1494 RIGA

Ms. Tija Freimane
CCB Latvia
Novembra krasimala 3 1, 343 ist
LV-1484 RIGA

Mr. Imants Freimanis
IVL
25 Peldu Street
LV-1494 RIGA

Mr. Vaclavs Galanskis
Ministry of the Environment and Regional Development
25 Peldu Street
LV- 1494 RIGA

Ms. Inguna Grinsteine
Latvian Republic Environmental Protection Committee
25 Peldu Street
LV- 1494 RIGA

Mr. Mintauts Jansons
Marine Monitoring Centre
Latvian Hydrometeorological Agency
19 Kr. Valdemara Street
LV-1010 RIGA

Mr. Laimonis Kauss
Environmental Protection Department in
former Latvian Agriculture Ministry
2 Republic Sq.
LV-1981 RIGA

Ms. Ilze Kirstuka
Analytics and Information Centre
2 Straumes street
LV-2015 JŪRMALA

Mr, Andris Krikis
Latvian Republic Environmental Protection Committee
25 Peldu Street
LV-1494 RIGA

Mr. lmants Krumins
Ministry of the Environment and Regional Development
25 Peldu Street
LV-1494 RIGA

Ms. Laila Kule
Research Centre
Latvian Republic Environmental Protection Committee
25 Peldu Street
LV-1494 RIGA

Mr. Arnolds Luksevics
Latvian Republic Environmental Protection Committee
25 Peldu Street
LV- 1494 RIGA

Ms. Iraida Lyulko
Latvian Hydrometeorological Agency
19 Kr. Valdemara Street
LV-1010 RIGA

Ms. Gaida Matisone
Latvian Hydrometeorological Agency
19 Kr. Valdemara Street
LV-1010 RIGA

Mr. Igo Midrijanis
Liepajas Regional Committee of Environmental Protection
Kuldigas district
Pilsetas Lauk 4-3 11
LV-3300 KULDIGA

Mr. Janis Petersons
Ventspils Regional Environmental Protection Committee
22 Darza Street
LV-3 100 TUKUMS

Mr. Andris Plaudis
Council of Ministers
36 Brivibas Bulv.
LV-1520 RIGA

Mr. Leonids Portnovs
Baltic Sea Protection Inspection
17 Liela Pils Street
LV- 1050 RIGA

Mr. Guntis Pukitis
Analytics and Information Centre
Ministry of Environmental Protection and Regional Development
2 Straumes street
LV-2015 JURMALA

Mr. Andris Roska
Latvian Republic Environmental Protection Committee
25 Peldu Street
LV- 1494 RIGA

Ms. Raina Rudzite
Latvian Republic Environmental Protection Committee
25 Peldu Street
LV-1494 RIGA

Ms. Mara Sile
Riga Regional Environmental Protection Committee
17 Liela Pils Street
LV- 1050 RIG A

Ms. Anita Skujina
Riga Regional Environmental Protection Committee
17 Liela Pils Street
LV- 1050 RIGA

Mr. Oskars Stiebrins
State Company "Latvijas geologija"
3 Karla Ulmana
LV- 1004 RIGA

Ms. Margarita Ulande
Jelgava Regional Environment Protection Committee
Elektribas 6/8
JELGAVA

Ms. Erika Ulane
Latvian Republic Environmental Protection Committee
25 Peldu Street
LV-1494 RIGA

Mr. Andris Urtans
Northern Vidzeme Regional Nature Protection Complex
Ostas 1
LV-4033 SALACGRIVA

Ms. Kristina Veidemane
Ministry of the Environment and Regional Development
25 Peldu Street
LV- 1494 RIGA

Ms, Caecilia Wygers
Latvian Republic Environmental Protection Committee
25 Peldu Street
LV-1494 RIGA

Mr. Aivars Yurkovskis
Marine Monitoring Centre
Latvian Hydrometeorological Agency
19 Kr. Valdemara Street
LV-1010 RIGA

Mr. Karlis Zakss
Latvian Shipping Company
2 Basteja Bulv.
LV-1807 RIGA

Ms. Lilija Zandersone
Latvian Republic Environmental Protection Committee
25 Peldu Street
LV-1494 RIGA

Ms. Astrida Zandmane
Analytical and Information Centre
Environmental and Regional Development Ministry
5 Osu Street
LV-2015 JŪRMALA

Mr. Leonids Zelenskis
Liepajas Regional Committee of Environmental Protection
Jauna ostmala 2
LV-3401 LIEPAJA

Lithuania

Mr. Mindaugas Bilkis
Environmental Protection Department of Lithuania
A. Juozapaviciaus 9
LT-2600 VILNIUS

Mr. Arturas Daubaras
Environmental Protection Department of Lithuania
A. Juozapaviciaus 9
LT-2600 VILNIUS

Mr. Juozas Dubra
Lithuanian Sea Research Laboratory
Taikos Str. 26
LT-5802 KLAIPEDA

Ms. Irena Gaveniene
Environmental Protection Department of Lithuania
A. Juozapaviciaus 9
LT-2600 VILNIUS

Mr. Romualdas Musulas
Master port of Klaipeda
Zonenviekio 18
KLAIPEDA

Mr. Vladas Portapas
Environmental Protection Department
Rysiminky 2-4
KLAIPEDA

Ms. Daiva Semeniene
Environmental Protection Department of Lithuania
A. Juozapaviciaus 9
LT-2600 VILNIUS

Ms. Judita Sukyte
Environmental Protection Department of Lithuania
Environmental Research Board
A. Juozapaviciaus 9
LT-2600 VILNIUS

Ms. Virginija Traskeviciute
Environmental Protection Department of Lithuania
A. Juozapaviciaus 9
LT-2600 VILNIUS

Mr. Igor Zhukov
Fleet Institute
Minios 2
LT-5802 KLAIPEDA

Russia

Mr. Valery Koulibaba
Lencomgeology
am. Fontanka, 15
ST. PETERSBURG

Ms. Nataly Kutaeva
Marine Pollution Control and Salvage Administration of Russian Federation
Leningrad pr. 6b, c.2
MOSCOW

Mr. Alexander Mamaev
State Oceanographic Institute
Kropotkinski per. 6
119 034 MOSCOW

Ms. Zoia Mokrousova
Federal Service on Hydrometeorology and Environmental Monitoring of Russian Federation
Novovagankovski per. 12
MOSCOW

Ms. Nina Popova
DA "Ecology and business"
Lermontova str. 12-1-21
198 320 ST. PETERSBURG

Ms. Olga Snopkovskaya
Committee on Ecology and Nature Resources for St. Petersburg and Leningrad Region
Apraksis lane, bld. 4
191 023 ST. PETERSBURG

Mr. Nicolay D. Sorokin
Committee on Ecology and Nature Resources for St. Petersburg and Leningrad Region
Yolshaya Konushennaya St. 29
ST. PETERSBURG

Ms. Lioubov Stepanova
Ministry for Environment Protection and Natural Resources of Russian Federation
Kedrova Str. 8-1
117 321 MOSCOW

Ms. Natalia Tretyakova
Ministry for Environment Protection and Natural Resources of Russian Federation
B. Gruzinskaya Str. 4/6
123 812 GSP MOSCOW

Mr. Dimitry Zimin
Ministry for Environment Protection and Natural Resources of Russian Federation
Kedrova Str. 8-1
117 321 MOSCOW

Participants of the Training Course on Computerized Cataloguing for the Baltic Marine Environment Bibliography, l-2 September 1993

Ms. Mare Pärnapuu
Tallinn Technical University
Institute of Environmental Protection Technology
Järvevana tee 5
EE-0001 TALLINN
Estonia

Mr. Martins Belickis
Ministry of the Environment and Regional Development
Analytics and Information Centre
2 Straumes street
LV-20 15 JURMALA
Latvia

Ms. Kristina Veidemane
Ministry of the Environment and Regional Development
25 Peldu Street
LV- 1494 RIGA
Latvia

Ms. Virginija Traskeviciute
Environmental Protection Department of Lithuania
A. Juozapaviciaus 9
LT-2600 VILNIUS
Lithuania

Mr. Valery Koulibaba
Lencomgeology
am. Fontanka, 15
ST. PETERSBURG
Russia

Mr. Fedor Kozak
United Nations Environment Programme
(UNEP)
P.O. Box 30552
NAIROBI
Kenya

Ms. Pirjo Sutela
Technical Research Centre of Finland
Information Service
P.O. Box 42
FIN-02 15 1 ESPOO
Finland

Mr. Anssi Neuvonen
Technical Research Centre of Finland
Information Service
P.O. Box 42
FIN-02 15 1 ESPOO
Finland

Secretariat of the Helsinki Commission

Mr. Ulf Ehlin, Executive Secretary (*)
Mr. Adam Kowalewski, Maritime Secretary
Ms. Eeva-Liisa Poutanen, Environment Secretary (*)
Mr. Vassili Rodionov, Technological Secretary (*)
Mr. Niels-J. Seeberg-Elverfeldt, Programme Implementation Co-ordinator
Ms. Terttu Melvasalo, Senior Advisor (*)
Ms. Leena Heikkilä, Maritime Assistant
Ms. Teija-Liisa Lehtinen, Environment Assistant
Mr. Håkan Blomberg, Administrative Assistant

Katajanokanlaituri 6 B
FIN-00 160 HELSINKI
Finland

telephone	+ 358-o-6220 220
telefax	+ 358-o-6220 2239
telex	+ 125105 hlcom

(*) also speakers

ANNEX 2

SEMINAR PROGRAMME

Monday, 30 August 1993

Chairman: Mr. Fleming Otzen

13.00 - 13.20	**Opening of the Seminar by** the Host Country
13.20 - 13.40	Opening statement (Mr. Ulf Ehlin, Executive Secretary of the Commission)
13.40 - 14.00	Achievements of the Helsinki Commission (Mr. Fleming Otzen, Chairman of the Helsinki Commission)
14.00 - 15.30	Implementation of the 1992 Helsinki Convention (Mr. Pertti Harvola, Finland)
15.30 -	Introduction to the Baltic Sea Joint Comprehensive Environmental Action Programme and HELCOM Programme Implementation Task Force (HELCOM PITF) (Mr. Göte Svenson, Chairman of HELCOM PITF) followed by a presentation by the HELCOM Secretariat on cooperation between EC, TC and HELCOM PITF (Ms. Eeva-Liisa Poutanen, Environment Secretary and Mr. Vassili Rodionov, Technological Secretary)

Tuesday, 31 August 1993

HELCOM PROGRAMME IMPLEMENTATION TASK FORCE (HELCOM PITF)
Chairman: Mr. Göte Svenson

9.00 - 11.00	Principles in the implementation of the Joint Comprehensive Environmental Action Programme (JCP) and problems related to the action in the seminar countries * Status of the action taken or planned (Ms. Terttu Melvasalo, HELCOM) * Financing questions (Mr. Harro Pitkänen, NEFCO, and a representative from the World Bank)
11.00 - 11.30	Coffee break

11.30 - 12.30 * Problem areas
(Chairman of HELCOM PITF, HELCOM Secretariat, NEFCO, World Bank)

12.30 - 14.00 Lunch break

14.00 - * Each of the participating countries could provide a background paper and a comment statement (15-30 minutes) on the topics
- Estonia
- Latvia
- Lithuania
- Russia

* General discussion on the topics and problems related, conclusions

Coffee break during the afternoon session

Wednesday, 1 September 1993

ENVIRONMENT COMMITTEE (EC)
Chairman: Mr. Niels Peter **Rühl**

9.00 - 11.00 Introduction to the work of EC and its subsidiary bodies

* EC in general (tasks, structure, working strategy, etc.)
(Mr. Niels Peter **Rühl**, Chairman of EC)

* EC EGAP
(Mr. Niels Heidam, Chairman of EC EGAP)

* EC MORS
(Mr. Hartmut Nies, Chairman of EC MORS)

* Other ad hoc working groups and expert groups
(Ms. Eeva-Liisa Poutanen)

11.00 - 11.30 Coffee break

11.30 - 13.00 Implementation of the Baltic Monitoring Programme and the coastal programme

* Cruise plans, sampling stations and times, parameters and matrices to be analyzed, etc.
(Mr. Sverker Evans, Sweden)

* Matters related to quality assurance
(Mr. Uwe Harms, Germany)

* Data reporting
(Ms. Liisa Tuominen-Roto, Environment Data Centre (EDC))

13.00 - 14.00	Lunch break
14.00 - 14.30	Assessment activities
	* Assessment activities in general and preparations of the Third Periodic Assessment (Ms. Eeva-Liisa Poutanen)
14.30 - 15.00	Coffee break
15.00 - 15.45	HELCOM Bibliography (Ms. Pirjo Sutela, Technical Research Centre (VTT))
15.45 -	Information concerning INFOTERRA (Mr. Feodor Kozak, UNEP)
	National presentations by the seminar states
	Discussion and conclusions

In connection with the Seminar a "Training course on computerized cataloguing for the Baltic Marine Environment Bibliography" will be arranged on l-2 September 1993, especially for persons involved in the collection and compilation of the HELCOM bibliographic data. An emphasis will be put on training the input of bibliographic data, indexing, use of thesaurus, etc. Ms. Pirjo Sutela and Mr. Anssi Neuvonen (VTT, Finland) will act as teachers.

MARITIME COMMITTEE (MC)
Chairman: Mr. Peter Ehlers

9.00 - 09.30	The tasks and aims of the Maritime Committee (MC) of the Helsinki Commission (Mr. Peter Ehlers, Chairman of MC)
9.30 - 10.15	IMO Conventions in the field of marine pollution prevention, preparedness and response (Mr. Oleg Khalimonov, International Maritime Organization)
10.15 - 11.00	Practical organization of port state control and information on the Memorandum of Understanding on Port State Control (Mr. Jukka Häkämies, Finland)
11.00 - 11.30	Coffee break
11.30 - 12.30	Implementation of the provision on reception facilities (presentation of IMO's manual on port reception facilities) (Mr. Henk Langenberg, the Netherlands)
12.30 - 14.00	Lunch break

14.00 - 15.00 National experience in the implementation of HELCOM Recommendations in the field of MC
(Mr. John Østergaard, Vice-Chairman of MC)

15.00 - 16.00 National presentations by the seminar states

16.00 - 16.30 Coffee break

16.30 - Discussion and conclusions

Thursday, 2 September 1993

TECHNOLOGICAL COMMITTEE (TC)
Chairman: Mr. Tapani Kohonen

9.00 - 11.00 Introduction to the work of TC and its subsidiary bodies
(30 min. per presentation)

* Technological Committee in general: history, tasks, structure, strategy, working methods and approaches, achievements
(Mr. Tapani Kohonen, Chairman of TC)

* TC POINT: tasks, working methods, priorities and current work programme
(Mr. Bernd Mehlhorn, Chairman of TC POINT)

* TC DIFF: tasks, working methods, priorities and current work programme
(Ms. Margareta Stackerud, Chairman of TC DIFF)

* TC POLO: history and experience, current tasks and plans
(Mr. Ain Lääne, Vice-Chairman of TC)

11.00 - 11.30 Coffee break

11.30 - 12.30 National experience in implementation of HELCOM Recommendations
(20 min. per presentation)

* Reduction measures related to point sources
(Mr. Uwe Schell, Germany)

* Reduction measures related to agriculture
(Mr. Hans Colind Hansen, Denmark)

* Product control measures
(Ms. Margareta Stackerud, Sweden)

12.30 - 13.30 Lunch break

13.30 - 13.50 * Enforcement mechanism of national implementation of HELCOM Recommendations
(Ms. Emelie Enckell, Finland)

13.50 - 14.30 National presentations from countries in transition (experience, problems, priorities, needs etc.)
- Estonia
- Latvia
- Lithuania
- Russia

(10 min. per presentation)

14.30 - 15.00 Coffee break

15.00 - 16.10 Practical organization of national work within TC

* Presentations by
  - Finland (Ms. Mirja Siltanen)
  - Poland (Mr. Piotr Krzyzanowski)
  - Sweden (Ms. Ulla-Britta Fallenius)

(10 min. per presentation)

* Presentations from countries in transition (experience, problems, needs etc.)
  - Estonia
  - Latvia
  - Lithuania
  - Russia

(10 min. per presentation)

16.10 - 17.00 Discussion and conclusions

COMBATTING COMMITTEE (CC)
Chairman: Mr. Olli Pahkala

9.00 - 10.30 The international conventions on liability and compensation for oil pollution damage; Present and future
(Ms. Sally Broadley, International Oil Pollution Compensation Fund)

10.30 - 11.00 Information on the International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990 (OPRC 90)
(Mr. Oleg Khalimonov, IMO)

11.00 - 11.30 Coffee break

11.30 - 12.30 Organisation of the combatting authorities
(Mr. Thomas Fagö, Sweden)

12.30 - 14.00 Lunch break

14.00 - 15.00 Use of the HELCOM Combatting Manual
(Mr. Dan Thorell, Sweden)

15.00 - 16.30 Response strategies, response techniques, aerial surveillance
(Mr. Klaus Schroh, Germany)

16.30 - 17.00 **Coffee** break

17.00 - 18.00 The Finnish approach to implement the international provisions concerning the combatting of marine pollution incidents
(Mr. Olli Pahkala, Finland)

18.00 - National presentations by the seminar states, discussion and conclusions

Fridav, 3 September 1993

HELCOM combatting exercise

ANNEX 3

SUPPORTIVE MATERIAL DELIVERED TO THE PARTICIPANTS

HELCOM Seminar folder (list of contents attached)

HELCOM PROGRAMME IMPLEMENTATION TASK FORCE (HELCOM PITF)

* Baltic Sea Environment Proceedings:

  No. 46
  SUMMARIES OF THE PRE-FEASIBILITY STUDIES
  Prepared for the Baltic Sea Joint Comprehensive Environmental Action Programme (1993)

  No. 47
  HIGH LEVEL CONFERENCE ON RESOURCE MOBILIZATION
  Gdansk, Poland, 24-25 March 1993
  Compilation of Presentations and Statements (1993)

  No. 48
  THE BALTIC SEA JOINT COMPREHENSIVE ENVIRONMENTAL ACTION PROGRAMME (1993)

* Terms of Reference of the HELCOM PITF

* Work Plan of the HELCOM PITF 1992-1997

ENVIRONMENT COMMITTEE (EC)

* Compiled information on the Environment Committee (EC) and its subsidiary bodies and ad hoc Working Groups

* Report of EC 3

* Report of EC EGAP 10

* Report of EC MORS 8

* Report of EC BETA 1

Baltic Sea Environment Proceedings:

No. 27A
GUIDELINES FOR THE BALTIC MONITORING PROGRAMME FOR THE THIRD STAGE; PART A. INTRODUCTORY CHAPTERS (1988)

No. 27B
GUIDELINES FOR THE BALTIC MONITORING PROGRAMME FOR THE THIRD STAGE; PART B. PHYSICAL AND CHEMICAL DETERMINANDS IN SEA WATER (1988)

No. 27C
GUIDELINES FOR THE BALTIC MONITORING PROGRAMME FOR THE THIRD STAGE; PART C. HARMFUL SUBSTANCES IN BIOTA AND SEDIMENTS (1988)

No. 27D
GUIDELINES FOR THE BALTIC MONITORING PROGRAMME FOR THE THIRD STAGE; PART D. BIOLOGICAL DETERMINANDS (1988)

MARITIME COMMITTEE (MC)

* Terms of Reference for the Maritime Committee (MC)

* Terms of Reference for the ad hoc Working Group on Air Pollution from Ships (MC AIR)

* Report of MC 18

* Report of MC AIR 4

* Baltic Sea Environment Proceedings No. 50
SEMINAR ON RECEPTION FACILITIES IN PORTS
Turku, Finland, 16-19 November 1992 (1993)

* MARPOL 73/78 Convention (one copy per Delegation)

* Memorandum of Understanding on Port State Control
(Convention text)

Regional concepts of Port State Control . . . a regional effort with global effects;
by Richard W.J. Schiferli, Deputy-Head of the Secretariat of MOU

TECHNOLOGICAL COMMITTEE (TC)

* Terms of Reference for the Technological Committee (TC)

* Strategy and Action Plan of the TC

* Terms of Reference for the Working Group on Reduction of Discharges and Emissions from Point Sources (TC POINT)

* Work Programme for TC POINT

* Terms of Reference for the Working Group on Reduction of Inputs from Diffuse Sources (TC DIFF)

* Work Programme for TC DIFF

* Terms of Reference for the ad hoc Expert Group on Harmful Substances (TC CHEM)

* Tasks of the ad hoc Expert Group on Pollution Load to the Baltic Sea (TC POLO)

* Report of TC 3

* Report of TC POINT 3

* Report of TC DIFF 3

* Baltic Sea Environment Proceedings No. 45:
SECOND BALTIC SEA POLLUTION LOAD COMPILATION (1993)

COMBATTING COMMITTEE (CC)

* Terms of Reference for the Combatting Committee (CC)

* Report of CC 16

* Baltic Sea Environment Proceedings:

No. 34
STUDY OF THE RISK FOR ACCIDENTS AND THE RELATED ENVIRONMENTAL HAZARDS FROM THE TRANSPORTATION OF CHEMICALS BY TANKERS IN THE BALTIC SEA AREA (1990)

No. 51
STUDY OF THE TRANSPORTATION OF PACKAGED DANGEROUS GOODS BY SEA
IN THE BALTIC SEA AREA AND RELATED ENVIRONMENTAL HAZARDS (1993)

* The international conventions on compensation for oil pollution damage;
Brief explanatory note prepared by the Secretariat of the IOPC Fund

* International Oil Pollution Compensation Fund; General information on liability and compensation for oil pollution damage (limited number of copies)

* IOPC Fund Claims Manual (limited number of copies)

* International Oil Pollution Compensation Fund; Texts of the
197 1 Fund Convention,
1969 Civil Liablitity Convention,
1976 Protocols to the Fund and Civil Liability Conventions, Internal Regulations and Rules of Procedure
(2 copies per Delegation)

* International Oil Pollution Compensation Fund; Annual Report 1992

* International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990
(one copy per Delegation)

* International Convention relating to Intervention on the High Seas in Cases of Oil Pollution Casualties (1969) and
Protocol Relating to Intervention on the High Seas in Cases of Pollution by Substances Other Than Oil, 1973 (one copy per Delegation)

* HELCOM Combatting Manual (2 copies per Delegation)

LIST OF CONTENTS OF HELCOM SEMINAR FOLDER

1. Seminar Programme

2. Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1974, (Helsinki Convention)

3. * Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992

   * Guidelines on the Designation of Landward Limits of Internal Waters in Accordance with the Convention on the Protection of the Marine Environment of the Baltic Sea Area, 1992

4. * Declaration on the Protection of the Marine Environment of the Baltic Sea Area, 1988

   * Baltic Sea Declaration, 1990

   * Final Act of the Diplomatic Conference on the Protection of the Marine Environment of the Baltic Sea Area (Helsinki, Finland, 9 April 1992) including the Baltic Sea Environmental Declaration 1992

   * Gdansk Declaration, 1993

5. List of HELCOM Recommendations

6. List of Baltic Sea Environment Proceedings

7. Brochure “Baltic Marine Environment Protection Commission - Helsinki Commission”

8. Brochure “The Baltic Sea Joint Comprehensive Environmental Action Programme”