

STUDY GROUP ON THE ECONOMICS OF THE OCEANS

Draft agenda

1. Opening
2. Adoption of the agenda
3. Main issues
 - I. The changing state of the oceans
 - II. Policy measures
 - III. International scientific and technological cooperation
4. Conclusions and recommendations
 - Final discussion
 - Drafting
 - Review

15 - 18 January 1997

SG/OE/2

STUDY GROUP ON THE ECONOMICS OF THE OCEANS

Annotated agenda

1. Opening - background

It must be kept in mind that the over-riding purpose of the Malta Meeting on the Economics of the Oceans is to contribute to IWCO's work in (a) stimulating awareness of the unique role of the oceans (including the marine environment) for planetary survival and our ability to use them to satisfy human needs, (b) improving understanding of the measures needed to halt or mitigate the effects of the adverse trends affecting the oceans and (c) stimulating awareness of sustainable ways of making use of marine resources.

It is proposed that this meeting go beyond merely re-stating the rationale for economic analysis in assessing environmental costs and benefits and concentrate its attention on the policy instruments utilized for motivating behaviour that is more conducive to a sustainable use of environmental resources, in particular oceans.

A considerable amount of progress has already been achieved, as reflected in previous background notes by Commission Members, the report of the Ocean Economics Working Group at the Commission's Rio Meeting and the conclusions of the subsequent brainstorming session. There is agreement that although there is no need to invent a new economics for dealing with the oceans, there is a need for some creative thinking on how to apply the existing theory, methodology and the derived policy instruments to the oceans. There are at least two reasons that have been suggested in previous meetings. First, environmental and resource economics has concentrated primarily (though not exclusively) on terrestrial problems whereas we are dealing with the oceans. Some sets of issues are common to both areas whereas others such as transboundary and property right problems are more pronounced for the oceans. Moreover, it is more difficult and expensive to monitor the ocean. Secondly, the existing economic literature has concentrated on economics, narrowly defined, whereas the Rio Declaration and Agenda 21, by introducing the concept of *sustainable development*, have imposed the need for a wide-ranging political economy of the oceans which incorporates classical economic, ecological, socio-political, ethical, equity-based (including especially North-South) dimensions.

Further complicating the analysis, is the fact that a wide range of disciplines from the natural sciences -- biology, oceanography, physics, chemistry, climatology, meteorology etc. have become relevant to an understanding of the oceans and what to do to protect them. The advantage of economics as a tool of analysis is that it utilizes modeling techniques that can embrace the multidisciplinary approaches that are needed in order to understand what is happening.

2. Adoption of the agenda

The members of the study group are invited to review the draft agenda and approve it after modifying it as they see fit.

3. Overview of the main issues

(I) The changing state of the oceans

Any attempt to build public awareness must consider the causes and consequences of human-induced changes to the ocean environment and how these may be inter-acting with natural phenomena. Knowledge of these changes is also essential to the consideration of policies and their implementation.

(a) Conceptual approaches

There are undoubtedly many ways of conceptualizing these processes involving narrative descriptions, tabulations of facts and figures, benefit-cost calculations (this is where discount rates come in), scenario-building, simulations and complex modeling exercises of various kinds.

The Group may wish to consider the merits and applicability of the different types of conceptual approaches. In this connection, one of the most interesting to consider is the concept of *critical environmental regions*, recently developed for the United Nations University.

(b) Factual analysis

In more practical terms, the Group may wish to review the factual information available on the changing state of the oceans as it affects different countries and regions and different social and economic groups within countries. Also relevant is the state of knowledge on the importance of different types of human activity and the role of different countries and regions in contributing to changes in the ocean environment and in suffering the effects of those changes.

(II) Policy measures

There are many types of ways to pursue the protection and sustainable development of the ocean environment including its resources. The Group may wish to confine itself to what is known about policy experience in the following three areas: *control of chemical pollution*, *management of fisheries* and *coastal zone management*. The literature is abundant on the first two of these areas. The kinds of measures that have been used (several of which come under the rubric of "incentives"), include taxes and charges, fines, subsidies, tradeable pollution permits, tradeable fishing permits, licenses, environmental funds and many others. Each has its advantages and disadvantages in terms of effectiveness, cost of enforcement and acceptability. *Coastal zone management* is a more complex subject because it involves many different kinds of actors and multiple uses of a common resource. It is suggested that issues related to tourism could be discussed under this sub-topic. More generally,

in considering this sub-topic the Group will have an excellent opportunity to explore the ramifications of sustainable development as it applies to the oceans.

(III) International scientific and technological cooperation

It is suggested that the Group examine what is known about successful examples of scientific and technical assistance to developing countries and economies in transition as regards the oceans. The analysis of such cases would suggest approaches to international cooperation that deserve to be emulated on a larger scale. Perhaps the most important category of assistance is in *monitoring and surveillance techniques and R&D* which are critical to the protection of the seas and coasts. Monitoring of the fish stocks and catches, measurement of sea temperature variations, and testing the extent of bacterial and chemical contamination are but a few examples of the kinds of routine controls that are needed but are particularly lacking in many parts of the developing world. Among other possible subject areas for consideration are: *management of the consequences of rising sea levels, sewage disposal and industrial re-cycling technologies and prevention and management of marine disasters.*

4. Conclusions and recommendations

The Group is invited to draft a set of recommendations on what kinds of follow-up activities -- including their timing and costing -- may be proposed for the consideration of the Commission in order to produce an input whose relevance, quality and length would make it suitable for inclusion in the Commission's Final Report. Examples of such activities might be invited papers from Members of the Commission or outside experts and reviews of the literature prepared by the secretariat.

STUDY GROUP ON THE ECONOMICS OF THE OCEANS

Tentative timetable

Wednesday, 15 January

10.00 to 13.00

Item 1 - Opening

Item 2 - Adoption of the Agenda

Item 3 - The changing state of the oceans

15.00 to 18.00

Item 3 - The changing state of the oceans, continued

Thursday, 16 January

10.00 to 13.00

Item 4 - Policy measures

15.00 to 18.00

Item 5 - International scientific and technological cooperation

Friday, 17 January

10.00 to 13.00

Items 3 - 5 concluded

15.00 to 18.00

Item 6 - Conclusions and recommendations (final discussion)

Item 7 - Conclusions and recommendations (drafting)

Saturday, 18 January

10.00 to 13.00

Item 8 - Conclusions and recommendations (review)

Item 9 - Closing

15 - 18 January 1997

SG/OE/2

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Annotated agenda

1. Opening - background

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It is proposed that this meeting go beyond merely re-stating the rationale for economic analysis in assessing environmental costs and benefits and concentrate its attention on the policy instruments utilized for motivating behaviour that is more conducive to a sustainable use of environmental resources, in particular oceans.

A considerable amount of progress has already been achieved, as reflected in previous background notes by Commission Members, the report of the Ocean Economics Working Group at the Commission's Rio Meeting and the conclusions of the subsequent brainstorming session. There is agreement that although there is no need to invent a new economics for dealing with the oceans, there is a need for some creative thinking on how to apply the existing theory, methodology and the derived policy instruments to the oceans. There are at least two reasons that have been suggested in previous meetings. First, environmental and resource economics has concentrated primarily (though not exclusively) on terrestrial problems whereas we are dealing with the oceans. Some sets of issues are common to both areas whereas others such as transboundary and property right problems are more pronounced for the oceans. Moreover, it is more difficult and expensive to monitor the ocean. Secondly, the existing economic literature has concentrated on economics, narrowly defined, whereas the Rio Declaration and Agenda 21, by introducing the concept of *sustainable development*, have imposed the need for a wide-ranging political economy of the oceans which incorporates classical economic, ecological, socio-political, ethical, equity-based (including especially North-South) dimensions.

Further complicating the analysis, is the fact that a wide range of disciplines from the natural sciences -- biology, oceanography, physics, chemistry, climatology, meteorology etc. have become relevant to an understanding of the oceans and what to do to protect them. The advantage of economics as a tool of analysis is that it utilizes modeling techniques that can embrace the multidisciplinary approaches that are needed in order to understand what is happening.

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(I) The changing state of the oceans

Any attempt to build public awareness must consider the causes and consequences of human-induced changes to the ocean environment and how these may be inter-acting with natural phenomena. Knowledge of these changes is also essential to the consideration of policies and their implementation.

(a) Conceptual approaches

There are undoubtedly many ways of conceptualizing these processes involving narrative descriptions, tabulations of facts and figures, benefit-cost calculations (this is where discount rates come in), scenario-building, simulations and complex modeling exercises of various kinds. The Group may wish to consider the merits and applicability of the different types of conceptual approaches. In this connection, one of the most interesting to consider is the concept of *critical environmental regions*, recently developed for the United Nations University.

(b) Factual analysis

In more practical terms, the Group may wish to review the factual information available on the changing state of the oceans as it affects different countries and regions and different social and economic groups within countries. The *equity* (or, *inequity*) aspect is that the poor countries and the poorer classes within countries have a disproportionately low share in the consumption of the ocean's resources while suffering the greatest impact from the deterioration of the ocean environment. Also relevant is the state of knowledge on the importance of different types of human activity and the role of different countries and regions in contributing to changes in the ocean environment and in suffering the effects of those changes. This is the point in the argument in which to introduce *shipping* -- its growing volume, its dependence on the oceans and its potential effects on them.

(II) Policy measures

There are many types of ways to pursue the protection and sustainable development of the ocean environment including its resources. The Group may wish to confine itself to what is known about policy experience in the following three areas: *control of chemical pollution, management of*

fisheries and coastal zone management. The literature is abundant on the first two of these areas. The kinds of measures that have been used (several of which come under the rubric of *incentives*), include taxes and charges, fines, subsidies, tradeable pollution permits, tradeable fishing permits, licenses, environmental funds and many others. As regards the unsustainable practices associated with *open use commons*, the most typically suggested remedial instruments have been the establishment of private property rights. However, the recent literature has suggested a number of other innovative approaches for exploiting the commons, including the ocean commons, some of which have been adopted successfully by traditional societies. Each of the various regulatory instruments and measures used in protecting and managing the oceans has its advantages and disadvantages in terms of effectiveness, cost of enforcement and acceptability. As regards environmental funds, the Group may wish to reflect on the feasibility and desirability of taxes on tourism and shipping tonnage as a means of raising the needed revenues. *Coastal zone management* is a more complex subject because it involves many different kinds of actors and multiple uses of a common resource. It is suggested that issues related to *tourism* could be discussed under this sub-topic. More generally, in considering this sub-topic the Group will have an excellent opportunity to explore the ramifications of sustainable development as it applies to the oceans.

(III) International scientific and technological cooperation

It is suggested that the Group examine what is known about successful examples of scientific and technical assistance to developing countries and economies in transition as regards the oceans. The analysis of such cases would suggest approaches to international cooperation that deserve to be emulated on a larger scale. Perhaps the most important category of assistance is in *monitoring and surveillance techniques and R&D* which are critical to the protection of the seas and coasts. Monitoring of the fish stocks and catches, measurement of sea temperature variations, and testing the extent of bacterial and chemical contamination are but a few examples of the kinds of routine controls that are needed but are particularly lacking in many parts of the developing world. Among other possible subject areas for consideration are: *management of the consequences of rising sea levels, sewage disposal and industrial re-cycling technologies and prevention and management of marine disasters.*

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**Study Group
Economic Uses of the Ocean
Lisbon
16 - 18 February 1997**

IWCO/EC/WP 9

Draft Report

1. Opening

The Chairman of the Study Group on the Economic Uses of the Oceans, Ruud Lubbers opened the meeting in the presence of the President of the Commission who gave a welcoming address to the participants. Salvino Busuttill, Convenor of the Study Group was also present. The List of Participants is attached in the Annex.

2. Adoption of the agenda

The Agenda was adopted with a modification of item 3.4 to read "Incentives, instruments and institutions."

3. Main issues

The main purpose of the meeting was to consider how to apply the principle of sustainable development to governance of the ocean. In doing so the Group interpreted the concept of sustainability to encompass the environment, human sustainability and equity.

Exploring the meaning of sustainability means going beyond conventional economic analysis to consider at least three dimensions of sustainability: ecological, social and economic. In carrying out analysis and framing ocean management policies it is necessary to integrate the three dimensions, since the satisfaction of one or two of them does not ensure the satisfaction of the remainder. It is noteworthy that the UN Convention on the Law of the Sea was debated and adopted during a period characterized by confrontation between East and West and by the New International Economic Order, whereas today's concern for the ocean takes place at a time of emphasis on the market mechanism and – as reflected in Agenda 21 -- on the sustainable use of the ocean.

One can list six problems that need to be addressed in attaining the sustainable use of the ocean.

- 1) Open access and common property characteristics of the ocean requires that appropriate measures need to be taken to regulate access.

- 2) The role of the ocean in the global circulation system and the global genetic biodiversity as a public good favor a tendency to *free ride* on conservation issues. This is the notion that some countries or actors can benefit from the system without having to pay for the cost of using it.
- 3) The intergenerational and interspatial effects of the use of ocean resources result in a tendency to ignore effects that might be distant in time and space. There is a need to change the way such effects are handled through the use of temporal and (implicit) spatial discounting.
- 4) The impact of human activity on the oceans is subject to fundamental uncertainty about the behavior of the system, partly because of its complexity. This calls for new models of decision-making and different management rules based on maintaining the system within sustainable bounds and on exercising the precautionary principle in order to keep uncertainty within socially acceptable limits.
- 5) All of the above four lead to market failure. Hence market prices are inadequate measures of social value of ocean assets and require corrective incentives to guide behavior in some cases.
- 6) Poverty -- relative rather than absolute -- is aggravated by globalization and the existence of markets subject to monopolistic control or dominated by suppliers "authorized" through property rights to ignore the environmental consequences of their actions.

In connection with poverty, a distinction needs to be made between that issue and those of inequality and equity. For policy purposes, the sequence has to be poverty, equity and inequality. It is the first two that are the most relevant in questions involving the use of oceans.

Related to these problems is the disparity in public awareness about the ocean as distinct from other commons such as the ozone layer and the atmosphere. Hence there is a need to bring out the importance of the ocean in a convincing manner. One interesting way of doing so is to show orders of magnitude of the relative importance of the ocean (distinguishing between coastal areas and the high seas) and the terrestrial system as a contributor of ecosystem services.

This relates to the role of the ocean and other components of the global environment in GNP. Conventional national income accounting does not take into account the contribution to human welfare of nature and the depletion of the stock of natural resources. Making the adjustment to GNP to reflect non-marketed products as well as the use of essential natural resources and other welfare effects shows that there has been a decline rather than an increase of human welfare in a number of countries in recent decades. (See methodological chart attached)

No single international institution exists to deal with the multiple dimensions of the oceans and ocean space. In applying the concept of sustainability to the ocean, there is a need to bring out the specific issues of *overfishing, the impact of climate change on the ocean, mariculture, transportation, disposal of waste, nuclear testing, energy sources, role of oceans in the carbon cycle, polar ice caps, hurricanes and flooding (which call for an early warning system for the security of people and property), and coral reefs.*

Regarding the role of economics in understanding ocean issues, there is no basis for saying that we need to create a new economics for this purpose. Moreover, economists in recent years have increasingly sought to bring in sustainability in dealing with both the marine and terrestrial environments. At the same time, however, it must be recognized that economics alone is not up to coping with the complexities, uncertainties and risk associated with the use and governance of the oceans. An interdisciplinary and intersectoral effort is required in order to address the specific nature of ocean issues effectively and in an integrated way, consistent with sustainable development. It means a type of analysis and decisionmaking that explicitly recognize ecological limits and the prevalence of uncertainty, and gives weight to socioeconomic factors and to the welfare of people located elsewhere in time and space.

The operationalization of sustainable development calls for the adoption of the:

1. *Subsidiarity principle:* governance should occur at the lowest organizational level possible.
2. *Responsibility principle:* rights to use environmental resources carry attendant responsibilities to use them sustainably and fairly.
3. *Precautionary principle:* in the face of uncertainty concerning environmental resources and impacts, we should err on the side of caution.
4. *Participatory principle:* parties affected by a decision or process should participate fully in its formulation and implementation.

From a social perspective, the relevant rate of discount in valuing ocean uses over time is the pure rate of time preference, which is zero and implies that the consumption of present and future generations is given equal value. It is the existence of technological change, risk and uncertainty that justify positive discount rates. The discount rate is not to be confused with the rate of interest which is perfectly consistent with a zero rate of time discount.

4. Conclusions and recommendations

The concept of oceans as our common heritage has to incorporate the "capacity building" dimension – especially capacity to govern. This means not only the adoption of treaties and rules but also the instruments and disciplines at all levels to implement and enforce them, as well as the various types of

research, technical and organizational competence associated with ocean management.

There is a need to be sensitive to scale or level of jurisdiction in ocean governance. Geographically, it is regions defined as large marine ecosystems that are the most promising levels for implementing policies pursuing cooperation activities. Implementation at a global level, while relevant, is too remote from the geographically specific (i.e. coastal) areas in which most problems occur whereas implementation at a national level is unable to cope with transboundary effects.

Taxation of the use of the oceans is an idea whose time has come and should be studied and formulated in more detail. Fairness dictates the users of the oceans contribute to defraying the social cost of their activities in the same way that terrestrial users do. The ideal tax from a strict economic efficiency point of view is a tax on rents associated with ownership or exploitation of ocean resources because they are not distortionary.

Although the notion that companies and not only governments should pay for the oceans is attractive from the point of view of raising revenue for better ocean management, the issue is a complex one to resolve in practice because considerations of fairness militate in favor of taxing those whose activities have an impact on the ocean, whereas in the case of land-based pollution, it may be difficult to pinpoint which entities from bordering states are responsible.

Tax exemptions or reductions on investments in green activities are well worth considering as incentives for promoting responsible behavior among users of the ocean.

The possibility of expanding the conception and facilities of GEF to deal more fully with ocean issues should be actively explored

The CO₂ balancing capacity of the EEZs and territorial waters have to be safeguarded and, where possible, reinforced. Global warming leads to rise of the sea level but oceans (EEZs plus high seas) can contribute to mastering the CO₂ problem as well.

In order to improve the functioning of the market mechanism the *precautionary principle* should be made to apply not only to governments but also to enterprises. Insurance companies and financial institutions have roles to play in protecting the vulnerable segments of society from some of the effects of uncertainty in regard to the ocean.

The positive aspects of technology in relation to the oceans have to be pursued by stimulating the generation of technologies geared to renewable resources and sustainable development and by the establishment of suitable mechanisms to assure the widest possible diffusion of these technologies.

The function of the present GOOS, that is to monitor the physical aspects of the ocean, should be complemented by a future system to deal with the relevant socioeconomic aspects in line with the broad concept of sustainable development as it has been interpreted by this Study Group.

Oceans ultimately belong to the people. Ecological sustainability, economic efficiency and equity across time and space need to become joint objectives if the ideal of the oceans as common heritage of mankind is to be fulfilled. In this sense, the recommendations and conclusions of the Study Group on Partnership and Solidarity are also relevant to the present Study Group and vice versa.

5. Closing

As was the case with the opening, the closing meeting of the Study Group was held in the presence of Dr. Mário Soares, Chairman of the Commission. Chairman Ruud Lubbers briefed Dr. Soares on the Group's deliberations, underlining that its conclusions would form an important contribution to the Final Report of the Commission.

Annex 1

Study Group
Economic Uses of the Ocean
Lisbon
16 - 18 February 1997

SG/OE/4 Rev.2

List of Participants

Elisabeth Mann Borgese*	Canada
Salvino Busuttill* (Coordinator)	Malta
Anthony Charles	Canada
Robert Costanza	USA
Sidney Holt*	UK
Catrinus Jepma	The Netherlands
Ruud Lubbers* (Chairman)	The Netherlands
Charles Perrings	UK
Mário Ruivo*	Portugal
Paul Streeten (Rapporteur)	USA
Secretariat of IWCO	
Jean Pierre Lévy	Executive Secretary
Jan van Ettinger	
Thomas Ganiatsos	
Peter Sand	

* Member of IWCO