United Nations Development Programme
Sustainable human development

SUSTAINABLE ENERGY AND ENVIRONMENT DIVISION
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To : David La Roche
GEF Secretariat

From : Philip S. Reynolds
SEED

Subject : PDF-B Proposal: Removal of Barriers to the Effective Implementation of Ballast Water Control and Management Measures in Developing Countries

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GEF-IMO

Attached is the revised version of the above PDF-B proposal for your "no objection review" as agreed at our 22 April Bilateral with the GEF Secretariat. This revision takes account of the recommendation of our 22 April Bilateral with the GEF Secretariat and it has been cleared by Andy Hudson.

We look forward to your early response so we can begin this project.

Thank you for your cooperation.

cc: R. Asenjo
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GLOBAL ENVIRONMENT FACILITY

PROPOSAL FOR PDF BLOCK B GRANT

Country:	Global	
Focal Area:	International Waters: Contaminant-Based Operational Programme (Number 10)	
Project Title:	Removal of Barriers to the Effective Implementation of Ballast Water Control and Management Measures in Developing Countries	
Funding Requested:	US$ 219,400	
Cofunding:	Governments	$110,000
	IMO	$50,000
	Maritime industry through the International Chamber of Shipping (ICS), International Association of Ports and Harbours and Co-operative support to be provided by IOC, UNEP and ICES	
Requesting Agency:	United Nations Development Programme	
Executing Agency:	International Maritime Organization	
Block:	Block B	
Block A Grant Awarded:	No	
Block B Grant Awarded:	No	
Duration:	12 months	

I. SUMMARY PROJECT OBJECTIVES AND DESCRIPTION

1. Main Objective

The overall objective of this programme is to help developing countries reduce the transfer of harmful organisms in ship ballast water and thus eliminate the environmental damage resulting from such transfers. The GEF-financed activities will build upon the technical and regulatory authority and capacities of the International Maritime Organization by identifying state-of-the-art ballast water management and control methods, barriers to their application in selected regions, and strategies for removing those barriers. The programme will also utilize a series of pilot sites to test and document new and effective control measures and approaches to barrier removal.

2. Background

Since the introduction of steel hulled vessels about 120 years ago, water has been used as ballast to stabilize vessels at sea and for a variety of other purposes. The amounts of ballast carried on board vessels range from several hundred liters to more than 100,000 tons; this depends on the size and purpose of the vessel. Globally, it is estimated that about 10 billion tonnes of ballast water is transferred each year. The water taken on board for ballasting a vessel may contain suspended matters, e.g. sediment particles and organic debris; these may then form layers in ballast tanks or cargo holds carrying ballast. Together with the ballast waters and associated sediments all life stages of aquatic organisms may be taken, including dormant stages (cysts) of microscopic toxic aquatic plants; e.g. dinoflagellates, which are often resting in sediments and may cause harmful algal blooms after their release. In addition, pathogens such as the bacterium vibrio cholerae, have been transported with ballast water. The survival rate of species after discharge depends upon the physicochemical and biological conditions of the receiving area; areas where the ballasting environment is similar to the deballasting site are particularly susceptible. Studies indicate that typically less than three per cent of the released species actually become established in new regions (U.S. Shipping Study, 1993).

3. Overview of Problem/Main Issues

Since water has been used to ballast ships, many introductions of non-indigenous organisms in new locations have occurred. The need to strengthen existing controls was generated by a number of specific cases where introduced new organisms caused tremendous damages and also endangered human health:

- the introduction of the European zebra mussel (*Dreissena polymorpha*) in the North American Great Lakes, resulting in expenses of billions of dollars for pollution control and cleaning of fouled underwater structures and waterpipes:
- the introduction of the American comb jelly (*Mnemiopsis leidyi*) to the Black and Azov Seas, causing the near extinction of the anchovy and sprat fisheries;

- the introduction of the Japanese brown kelp (*Undaria pinnatifida*) to Tasmanian waters, having detrimental impacts on the abalone and sea urchins fisheries;
- the introduction of the South-East Asian dinoflagellates of the genera *Gymnodinium* and *Alexandrium* to Australian waters, which cause Paralytic Shellfish Poisoning; and
- the introduction of the *Vibrio cholerae* in Latin American coastal water, probably through discharges of ballast water from Asia, seriously threatened the health of thousands of people after consumption of seafood from affected areas.

In addition, as ships travel faster and faster, the survival rates of species carried in ballast tanks have increased and introduction of non-indigenous species has recently received increasing attention. In this connection, it may be noted that currently, global shipping moves 80 per cent of the world's commodities.

4. Previous support

In 1991, the Marine Environment Protection Committee (MEPC) of the International Maritime Organization (IMO) adopted Guidelines for Preventing the Introduction of Unwanted Organisms and Pathogens from Ships' Ballast Waters and Sediment Discharges. In 1992, the United Nations Conference on Environment and Development (UNCED) requested IMO to consider the adoption of appropriate (legally binding) rules on ballast water discharge to prevent the spread of non-indigenous organisms. The eighteenth IMO Assembly in 1993, after consideration of results of an international survey, noting that the guidelines have to date been used only by very few countries and that the uncontrolled discharge of ballast water containing aquatic organisms remained a major international problem which has continuously worsened, adopted the MEPC Guidelines through Assembly resolution A.774(18), thus underlining the importance of this matter. The resolution requested the Marine Environment Protection Committee (MEPC) and the Maritime Safety Committee (MSC) to keep the guidelines under review "with a view to further developing the guidelines as basis for a new Annex to MARPOL 73/78," i.e. to develop internationally applicable legally binding provisions as part of the MARPOL 73/78 Convention.

As follow up to the above Assembly resolution, MEPC in 1994 started to draft a set of legally binding provisions together with guidelines that should advise IMO Member States in the effective implementation of the regulations. This work will be completed in late 1998; its adoption is proposed to be accomplished at a conference probably in the year 2002.

The existing (voluntary) ballast water management procedures adopted through resolution A.774(18) are heavily based on the exchange of ballast water at sea, preferably at depths of more than 2,000 metres. While a broader number of chemical and physical (e.g. filtration) treatment methods have been investigated, most of these have been found to be impractical, too expensive and at times environmentally unacceptable. There is indeed, currently, no adequate treatment method available to sterilize large quantities of water and sediments on board ships, although some promising results have appeared for heating and electric shock in selected cases. The exchange of ballast water at sea is broadly accepted as the most cost-effective and environmentally acceptable

prevention strategy currently available since open ocean flora and fauna generally cannot adapt to coastal conditions and vice versa. However, there may be cases, particularly in bad weather situations, where ballast water exchange at high sea might seriously endanger the safety of the vessel and its crew necessitating alternative treatment options. In 1997, MEPC after considering advice provided by the MSC Sub-Committee on Ship Design and Equipment concerning safety aspects in regard to ships exchanging ballast water at sea, agreed that a new IMO Assembly resolution should be prepared for adoption in late 1997 providing additional guidance on ballast water management on board ships and on control procedures to be applied to port State authorities, emphasizing again the importance of the matter and the need to solve associated problems. Such new resolutions should bridge the time period needed until legally binding provisions or regulations will enter into force.

The Commission of the European Union, in light of problems concerning the settlement of new species in the North Sea, Baltic Sea and the Mediterranean, is considering the development of management and control measures for its region with a view to minimizing the risks of new introductions. However, IMO emphasized that provisions adopted by individual flag States as well as port States should be based on globally applicable and uniform regulations, taking into account the global character of maritime shipping. Likewise, national authorities are currently requested not to take any unilateral measures which would go beyond the recommendations set out in IMO resolutions A.774(18).

The establishment of control procedures on board ships and particularly in ports makes it necessary to develop methods concerning sampling, analysis and certification of ballast water qualities according to the regulations and implementation guidelines thereto which are under consideration by IMO. In this context, a joint ICES/IMO/IOC working group has been established to prepare the relevant standards and guidelines, starting in April 1997. All these efforts will be accompanied and complemented with educational material to increase the awareness of maritime personnel concerned, e.g. of national maritime administrations, the maritime industry and operators, including ships' crew, of problems that might be caused by the uncontrolled transfer with ballast water of marine species and pathogens. Every single seaman on board a ship has to be fully aware why specific measures are taken, e.g. the exchange of ballast water at high sea, the monitoring of port and ballast waters, or the cleaning of tanks and lockers of sediments. Likewise, port State authorities and personnel acting on behalf of such authorities should be fully aware of what is involved, including relevant IMO requirements, and of the ballast water management plans that are being developed for each ship. This includes location of sampling points and information on physical and chemical measurements that might be carried out to ascertain that ballast water exchange has in fact taken place at high sea, or that the ballast water is "clean" in particular of target species that might be listed by national authorities or other users of the coastal, and estuarine environment or inland water ports, as appropriate. In this regard, it is of particular importance for developing countries to further their capacity for the effective implementation of provisions adopted by IMO. Only then would IMO Member States be in a position to ratify legally binding provisions.

5. Project Objectives and Activities

The overall objective of the full GEF project is the identification and removal of barriers to the effective management and control of ship ballast waters in developing countries. Barriers to be overcome may include informational, technical, institutional, financial, political, cultural and legal.

Project Activities will include:

1) identification of the most promising ballast water control and management alternatives for developing countries;

2) identification of barriers to be removed in order to allow effective implementation of these alternatives;

3) determination of effective strategies for removing the barriers identified;

4) provision of support for implementation of barrier removal strategies; and

5) testing of ballast water management approaches and barrier removal measures via a series of demonstration sites in developing countries.

II. DESCRIPTION OF PROPOSED PDF-B ACTIVITIES BY COMPONENT

IMO is preparing legally binding and globally applicable regulations for ballast water management, with a view to minimizing the risks of introducing unwanted aquatic organisms and pathogens with ballast water taken on board ships into regions with different ecosystems. The IMO will supplement these regulations with guidelines that are needed for their effective implementation. Final approval of the draft provisions and guidelines is envisaged to be achieved in late 1998, and their adoption is foreseen for 2000. The full project will involve the identification and removal of barriers to the effective management and control of ship ballast waters in developing countries. Approaches to barrier removal may include training and information dissemination, capacity building, demonstration projects and technical assistance. The PDF-B will:

1) organize a project Steering Committee to ensure that project preparation and implementation activities are country-driven and broad-based;

2) produce a summary report of the consequences of ballast water transfer of exotic species;

3) identify current and evolving ballast water management regulations and approaches with an aim towards improving such practices in developing countries;

4) identify barriers to implementing the practices identified in (2) and suggest strategies for removing those barriers;

5) identify and negotiate pilot sites to test ballast water management approaches and barrier removal strategies, and

6) prepare a project document for the full GEF project.

IMMEDIATE OBJECTIVE:

To carry out preparatory activities for a GEF project to remove barriers in developing countries to effectively implement guidelines and regulations that are being prepared by IMO in regard to ballast water management with a view to minimizing the risks of introducing new aquatic species and pathogens through ballast water discharges, protecting biodiversity of marine life and ensuring maintenance of the many other uses of the sea as well as protecting of human health.

OUTPUT 1

A draft report identifying: 1) the most promising ballast water control and management alternatives for developing countries; 2) the barriers to be removed in order to allow effective implementation of these alternatives; and 3) strategies for removing the barriers identified.

A draft report summarizing the issues related to, and more specifically the consequences of, ballast water transfer of exotic species, with an emphasis on health impacts, particularly on women and children.

ACTIVITIES 1

1.1 Review of ballast water regulations and associated guidelines developed to date by IMO and others with a view towards the identification and removal of barriers that permit their implementation in developing countries.

Consultant	3 weeks
$ 5,200	Honorarium
$ 4,200	per diem
$ 3,000	travel

1.2 Consultation with representatives and experts from IMO Member States that have been involved in the implementation of effective ballast water management strategies (USA, Australia, New Zealand), as well as with representatives from developing and transition countries currently assessing their ballast water management needs and capacities (Brazil, Liberia, Poland, Chile, China, Kenya, Papua New Guinea, S. Africa). These consultations will involve a review of the array of current and emerging options available in ballast water management, and the identification of specific barriers in selected developing countries which hinder the application of current approaches to successful ballast water management.

Representatives from shipping industries, port authority officials, NGO's, co-operating UN-Bodies and other stakeholders with an interest in, or who are effected by, ballast water transfer issues and will also be involved.

Consultant	6 weeks
$ 10,500	Honorarium
$ 8,400	per diem
$ 6,000	travel

1.3 Convene meetings with experts in various regions (Asia, E.Europe/CIS, Latin America, Africa and the South Pacific) to review conclusions and recommendations of global consultation (1.2) with a view to identifying ballast water management strategies, barriers to be removed and strategies for barrier removal which conform with regional characteristics including oceanographic features, government structure, scientific capacities, economic systems and cultural variables.

Consultant	4 weeks
$ 7,000	Honorarium
$ 5,600	per diem
$ 6,000	travel

For participation of experts in regional meetings, travels and subsistence for most representatives will have to be provided. This will be in the range of US$60,000.

1.4 Preparation of a report identifying, on a regional basis: 1) the most promising ballast water control and management alternatives for developing countries identified in 1.2 and 1.3; 2) the barriers to be removed in order to allow effective implementation of these alternatives; and 3) strategies for removing the barriers identified in each region.

Consultant, with IMO staff	2 weeks
$ 3,500	Honorarium
$ 2,800	per diem
$ 3,000	travel

1.5 Preparation of a report summarizing the issues related to, and more specifically the consequences of, ballast water transfer of exotic species, with an emphasis on health impacts, particularly on women and children.

Consultant, with IMO staff	2 weeks:
$3,500	Honorarium
$2,800	per diem
$3,000	travel

TOTAL COSTS ACTIVITIES 1

Consultant honoraria:	US$ 29,700
per diem consultants	23,800
travel costs	21,000
regional experts (travel + per diem)	60,000
TOTAL	US$ 134,500

OUTPUT 2 **A proposal for the establishment of up to five pilot demonstration sites in developing countries (one in each of the five development regions of the world), each with known barriers to be overcome, to test effective and manageable ballast control measures identified in Output 1. Barriers and possible strategies for overcoming them might include:**

a. Knowledge --- training and information dissemination via Internet, resource guide(s) and training package(s).

b. Scientific & Technical ---technical assistance, e.g. port and ballast water sampling and monitoring programs.

c. Institutional ---institutional strengthening.

d. Financial ---financial mechanisms, donor identification.

e. Legal ---strengthening national laws and their enforcement.

f. Cultural --- reinforcing and promoting positive attitudes towards ballast water management.

g. Political --- Promoting bilateral and multi-lateral conflict resolution.

Specific ballast water management measures to be tested might include:

a. open ocean ballast-exchange or continuous flushing;

b. treating "contaminated" ballast water with heat or other physical and chemical methods, and;

c. port monitoring programmes to establish the existence or absence of unwanted organisms in water which, if used for ballasting might pose a threat to the port of discharge;

d. fresh water ballasting.

ACTIVITIES 2

2.1 Consultation with key experts and government representatives from IMO Member States to identify possible pilot demonstration sites.

NOTE: This will be done at the same time as activity 1.2 so there is no extra cost.

2.2 Preliminary discussions at possible pilot demonstration sites and proposal for discussion with experts in various regions in connection with activity 1.3 followed by a visit to each proposed site. Each demonstration site will have it's own Steering Committee in the full project stage.

Consultant 4 weeks

OUTPUT 3 **Preparation of a GEF project document for the implementation of the full project.**

ACTIVITY 3

3.1 Development of a project document in consultation with stakeholders in IMO member states, the staff of IMO, UNDP and other possible donors.

Consultants, with IMO staff 2 weeks

$3,500	Honorarium
$2,800	per diem
$3,000	travel

TOTAL COST ACTIVITY 3: $ 9,300

OUTPUT 4 **First meeting of Project Steering Committee**

ACTIVITY 4

4.1 A Steering Committee, consisting of representatives from IMO, UNDP, cooperating UN agencies, and the shipping industry; representatives from each of the countries proposed for demonstration sites; and other stakeholders, will meet to review, comment on and finalize the following documents:

1) report on the consequences of ballast water transfer of exotic species;

2) report identifying the most promising ballast water control and management alternatives for developing countries, the barriers to be removed in order to allow effective implementation of these alternatives, and strategies for removing the barriers identified;

3) proposal for the establishment of up to five pilot demonstration sites in developing countries;

4) project document for full GEF project.

Meeting, Steering Committee 3 days

Per diem	$10,000
Travel	$25,000

TOTAL COST ACTIVITY 4: $35,000

Note on Co-Funding:

Activities carried out in relation to the preparation of regulations, implementation guidelines, circulars, resolutions, etc., as well as the convening of working group meetings, committees sessions, diplomatic conferences, fall within the mandate of IMO, and are covered by IMO's own budget.

Scientific meetings to assess impacts on the environment from unwanted non-indigenous species are covered under multi-agency arrangements, e.g. the Joint ICES/IMO/IOC Working Group on Ballast Water or the Joint IOC/UNEP/IMO Global Investigation of Pollution in the Marine Environment (GIPME) Programme.

For investigations on board ships, the shipping industry through the International Chamber of Shipping (ICS) will provide support and advice.

III. ELIGIBILITY

The proposed GEF project and the PDF B activities leading to its formulation focuses on the transfer of non-indigenous species in ship ballast water - a target of GEF Operational Programme No. 10 (Ship-Related Contaminants Component) which has not yet been adequately addressed. It aims at overcoming barriers to adopting best practices in ballast water management and control. It will actively involve a broad range of stakeholders and will stimulate private sector support through organizations, such as the Ship Owners' Organizations and the International Association of Ports and Harbours. All of these sites selected for demonstration projects will be in GEF-eligible countries. Virtually all of the activities under this project may be seen as "incremental" to baseline activities already carried out in developing countries.

A number of regional organizations, e.g. the Oslo Commission (NE Atlantic and North Sea) and the Helsinki Commission (Baltic Sea), as well as the European Union, being aware of potential problems related to the introduction and subsequent settlement of non-indigenous species, are considering the establishment of provisions and criteria on ballast water management. However, taking into account the global character of shipping, any national or global legislation should be based on rules and associated guidance adopted through IMO. The proposed GEF project provides a facility through which regional activities and globally applicable provisions could be coordinated through a concerted action.

IV. NATIONAL LEVEL SUPPORT

This project builds on the activities of IMO's Marine Environment Protection Committee (MEPC) Ballast Water Working Group. Interested member States of IMO pay their own way to attend meetings of this Working Group. The Members have already expressed their keen interest in this proposal. Nevertheless, the PDF-B project will test the concepts in this proposal with the countries concerned and ascertain their full commitment. In addition, maritime administrations of many developed countries either directly or in cooperation with national environmental agencies and/or maritime industries are supporting research and development programmes in relevant scientific and technological areas. Furthermore, countries hosting pilot sites will be visited and their commitments in terms of funding, counterpart staff and follow up support will be confirmed prior to the preparation of the full GEF project.

V. JUSTIFICATION FOR PDF GRANT

The full GEF project involves new and complex technical and regional issues related to barrier identification and removal and the selection and testing of pilot sites. This indicates a need to carefully conceptualize the project in active consultation with stakeholders like seafarers, port authorities, NGO's and senior government officials. In addition to this general level of consultation, it will be necessary to confirm the commitments of countries and institutions hosting the pilot demonstration sites. The GEF Block B project will enable the preparation of a realistic GEF project document which can be expeditiously and effectively implemented.

VI. ITEMS TO BE FINANCED

COST AND FINANCING (US$)					
	Activity/Resource	Time allocation (p/m)	GEF	Gov'ts.[1]	Other[2]
1.1	Review ballast water regulations and guidelines	0.75	$ 12,400		$ 5,000
1.2	Consultation	1.5	24,900	$ 92,000	32,000
1.3	Regional meetings	1.0	78,600	-	-
1.4	Prepare report on barrier removal strategies	0.5	9,300	12,000	3,000
1.5	Prepare report on ballast water impacts	0.5	9,300		
2.1	Consultation (see 1.2)	-	-	-	-
2.2	Visit pilot sites	1	20,600	6,000	4,000
3.1	Prepare project document	0.5	9,300	-	6,000
4.1	Steering Committee meeting	0.25	35,000		
5	Contingencies	-	20,000	-	-
	TOTAL	**6**	**$ 219,400**	**$ 110,000**	**$ 50,000**

[1] Travel of delegates to Consultation

[2] IMO, Ship Owners Organization, International Association of Ports and Harbours, etc.

VII. OUTPUTS

The outputs of the PDF B project will be:

1) a report identifying, on a regional basis: i) the most promising ballast water control and management alternatives for developing countries; ii) the barriers to be removed in order to allow effective implementation of these alternatives; and iii) a strategy for removing the barriers identified.

2) a report summarizing the issues related to, and more specifically the consequences of, ballast water transfer of exotic species, with an emphasis on health impacts, particularly on women and children.

3) up to five selected pilot demonstration sites, one in each of the world's development areas, initially confirmed by host countries and institutions, to test management approaches and barrier removal mechanisms;

4) a full UNDP/GEF project document which incorporates all of the above and outlines a four-year implementation programme.

VIII. EXPECTED DATE OF PREPARATION COMPLETION

The anticipated target dates for this PDF B proposal are as follows:

- August 1997 - start of Project operations
- September 1997 - consultation with representatives and experts from IMO member States [Activity 1.2] (this will done in conjunction with the meeting in London of the MEPC Ballast Water Working Group)
- November 1997 - April 1998 - Meetings with Experts in various regions (Activity 1.3)
- May 1998 - First meeting of Project Steering Committee
- July 1998 - Submission of a full UNDP/GEF Project Document incorporating all PDF-B Activities, Outputs and Recommendations
- October 1998 - Submission of the UNDP/GEF Project to the GEF Council

IX. SPECIAL FEATURES

This PDF B and the proposed project combine IMO technical and regulatory competence with UNDP/GEF incremental support to help break down barriers to implementation of internationally accepted ballast water regulations and guidelines in developing countries. Steps are underway to make at least some of these regulations

obligatory. Although some countries have already taken unilateral steps to deal with this issue, the global nature of shipping calls for the type of global approach which is supported by this project.

X. IMPLEMENTING AGENCY COOPERATION

Due attention will be paid to the possible links with UNEP's Regional Seas Programmes --- particularly in the regional meetings --- and World Bank projects in such fields as port development and ship waste management. When linkages are found, other IA representatives will be invited to join the Project Steering Committee.

XI. REFERENCES:

Rigby, Geoff. Possible Solutions to the Ballast Water Problem. Paper presented at the *National Symposium on Ballast Water Management*, Australian Quarantine and Inspection Service, Canberra, May 11-13, 1994.

Rigby, Geoff and Alan Taylor. Ballast Water: Its Impacts can be Managed. Paper presented at *International Council for the Exploration of the Sea 1995 Annual Science Conference*, 21-29 September 1995, Aalborg, Denmark.

Unwanted Aquatic Organisms in Ballast Water. Report of the Working Group on Ballast Water Convened during Marine Environmental Protection Committee 39th Session, Agenda Item 7 (1996).

Stemming the Tide: Controlling Introductions of Nonindigenous Species by Ships' Ballast Water. Committee on Ships Ballast Operations and Marine Board Commission on Engineering and Technical Systems, National Research Council. National Academy Press (1996).

XII. SUGGESTED ANNEXES (TO FOLLOW, if appropriate)