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A rational implementation of the International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC), 1990, in Brazil

Sandra Rita De Oliveira
WMU

WORLD MARITIME UNIVERSITY
Malmö, Sweden

A RATIONAL IMPLEMENTATION OF THE INTERNATIONAL CONVENTION ON OIL POLLUTION PREPAREDNESS, RESPONSE AND CO-OPERATION (OPRC), 1990, IN BRAZIL

By

SANDRA RITA DE OLIVEIRA

Federative Republic of Brazil

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DECLARATION

I certify that all the material in this dissertation that is not my own work has been identified, and that no material is included for which a degree has previously been conferred on me.

The contents of this dissertation reflect my own personal views, and are not necessarily endorsed by the University.

…… (Signature)

……. (Date)

Supervised by:
Captain Fernando Pardo
Associate Professor
World Maritime University

Assessor
Captain Jan Horck
Lecturer
World Maritime University

Co-assessor
Terence F. Melhuish
Fisheries and Oceans. Canada, Otawa.

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ABSTRACT

Title of Dissertation: **A Rational Implementation of the International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990, in Brazil**

Degree: **MSc**

The dissertation is a study of the International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC) and its implementation in Brazil. It examines what has been done presently and suggests a process of implementation to be followed to achieve the International Maritime Organisation (IMO) requirements.

A brief look is taken at the contents of the convention, and the controversial matters behind them. In this context, the reasons for and benefits from the adoption of the convention are analysed, considering both, developing and industrialised countries.

The structure of the Brazilian Maritime Administration, and its associated problems, are presented, and analysed as the basic tool to permit an understanding of the Brazilian method of implementation of international conventions.

Additionally, the current process of implementation of the OPRC in Brazil is discussed, focusing on the development of the Brazilian Contingency Plan.

The concluding chapters examine and propose necessary factors that must be adopted to make the complete process successful. The problems faced by Brazil can be generalised for many developing countries. The found solutions can also be generalised, and be of great interest to the maritime community worldwide.

KEYWORDS: Brazil, Contingency Plan, Convention, Implementation, Oil, Pollution.

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GLOSSARY OF TERMS

Baseline of the territorial sea: is the low water mark along the coast of a country. It includes the coast of all islands, except where, in the case of the sea adjacent to a bay, the baseline will be a straight line or series of straight lines across the bay, where the entrance to that bay exceeds 24 nautical miles.

Bioremediation: the process of using living organisms to break down the molecular structure of oil into less complex substances that are not hazardous or regulated. This is often undertaken using hydrocarbon-eating microbes introduced to a contaminated site in large numbers. Nutrients are often added to speed up the organisms' digestion of the oil, and reproduction.

Cargo vessel: vessel carrying non-petroleum products, which exceed 100 tonnes, gross registered tonnage (GRT).

Catastrophic spill: large-scale spill owing to unusual conditions, which is likely to have severe environmental consequences, and where the likelihood of occurrence is impossible to predict.

Chemical dispersant: a chemical formulation containing non-ionic surface-active agents that lower the surface tension between oil and water, and enable oil film to break up more easily and disperse within the water with natural or mechanical agitation.

Clean up: (see also Oil spill response)

Contingency Plan: a plan for action prepared in anticipation of an incident. In this case the contingency is for an oil spill incident. The contingency plan prepared for a site or region usually consists of guidelines and operating instructions intended to increase the efficiency and effectiveness of clean-up operations and to protect areas of biological, social and economic importance.

Exclusive Economic Zone (EEZ): all marine waters from the outer edge of the Territorial Sea (12 nautical miles) seaward for 188 nautical miles until the 200 nautical mile limit.

Harbour waters: within harbour limits.

Internal waters: includes any areas of the sea that are on the landward side of the baseline of the territorial sea.

IMO/IPIECA: International Maritime Organization/International Petroleum Industry Environmental Conservation Association

Maximum credible spills: the greatest spill that could be expected from the range of hazards (as example, shipping movements, bunkering, or bulk transfer) which are present at a specific location.

Oil: any petroleum in any form including crude oil, fuel oil, sludge, oil refuse, and refined products (other than petrochemicals).

Oil industry: producers, refiners and marketers of oil, and associated carriers and service contractors.

Oil spill: means the actual or probable release, discharge, or escape of oil into the internal waters or marine waters.

Oil spill response: actions taken to confirm the presence of an oil spill, stop its flow from the source, contain it, collect it, protect areas from damage by it, mitigate its effects on the environment, and clean up wildlife and areas contaminated by it.

On-scene commander (OSC): the person responsible for the control and management of the marine oil spill clean up. The relevant Regional Council appoints a regional on-scene commander (ROSC), and the Minister of Environment appoints the national on-scene commander (NOSC).

Oil transfer site: includes any land, site, building, structure, or facility (whether on land or above the sea) that is used to transfer oil or, at or from which oil is transferred to or from a ship or offshore installation.

Persistent oil: oils and petroleum products such as crude oils, fuel oils and lubrication oils that, when spilt, remain after weathering in a residual form in the environment for an appreciable period.

Regional oil spill contingency plan: a marine oil spill contingency plan prepared by a Regional Council and approved by the Minister of Environment.

Risk: an index of values derived from assessment of possible oil spill scenarios, where the risk equates to the probability of a particular event occurring, multiplied by a value which represents the magnitude of the impact which the event would create.

risk = probability x consequences

Shipboard Oil Pollution Emergency Plan (SOPEP): a plan prepared under Marine Protection Rules that implement the MARPOL 73/78 requirements, to specify the measures to be taken in respect of an oil spill from the ship.

Site oil spill contingency plan: a plan prepared for a land-based site or offshore installation, which specifies the measures to be taken in respect of a marine oil spill.

Site-specific: pertaining to one onshore site where oil is stored in bulk.

Territorial Sea: Coastal marine waters extending out to the 12 nautical mile limit.

Threat: the possible impact or consequences which a spill of oil could create if allowed to come in contact with a biological, social or economic resource.

Tier 1: site-specific, and includes most shore-side industry with oil transfer sites, offshore installations and all vessels required to have a shipboard plan. All Tier 1 sites and vessels are expected to plan for and be able to provide a clearly identifiable first response to pollution incidents for which they are responsible.

Tier 2: Regional Councils, which are expected to plan for and respond to marine oil spills within their part of the Territorial Sea (12 nautical miles) where the spills exceed the clean-up capability of Tier 1, or for which no responsible party can be identified.

Tier 3: the Ministry of Environment, which manages the National Oil Spill Contingency Plan for spills within a region which are beyond the resources of the region, or which occur within the EEZ but outside Regional Council boundaries.

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LIST OF ABBREVIATIONS

AOC	Area Operation Committee
CCA-IMO	Co-ordinate Commission of Affairs of the International Maritime Organisation
CLC	International Convention on Civil Liability for Oil Pollution Damage
CONAMA	National Council of Environment
DPC	Brazilian Directorate of Ports and Coasts
EEZ	Exclusive Economic Zone
FDEPM	Fund for the Development of Maritime Professional Education
FUND	International Convention on the Establishment of an International Fund for Compensation of Oil Pollution Damage
GTI	Interministerial Work Group
IBAMA	Brazilian Institute of Environment
IMO	International Maritime Organisation
MARPOL	International Convention for the Prevention of the Pollution from Ships
MEPC	Marine Environment Protection Committee
MOU	Memorandum of Understanding
NOSC	National On-scene Commander
NOSCC	National Oil Spill Control Committee
OGMO	Management Organ of Labour
OPRC	Oil Pollution Preparedness, Response and Co-operation Convention
OSC	On-scene Commander
PETROBRAS	Brazilian Petroleum Company

PNDAE	Ports Revitalisation Program
ROSC	Regional On-scene Commander
SCC	Shore Clean-up Co-ordinator
UNEP	United Nations Environment Program

1. INTRODUCTION

The Oil Pollution Preparedness, Response and Co-operation Convention (OPRC), which establishes rules, procedures and guidelines for better international co-operation in combating major oil pollution casualties, is a very important initiative of the International Maritime Organisation (IMO) aimed in the protecting the marine environment. It includes provisions for technical co-operation between States on combating major oil spills, realisation of research and development programmes and promotion of bilateral and multilateral co-operation in preparedness and response.

Two important points to take into account in the implementation of the OPRC Convention are the reimbursement of costs of assistance, which is included as an Annex to the convention, and the expansion of the scope of the convention to include hazardous and noxious substances, adopted as a resolution. These matters were controversial problems discussed during the conference of the OPRC Convention.

The possibility of co-operation in oil spill matters is particularly interesting for developing countries, which can receive assistance from industrialised countries, in case of emergencies and in their own development of contingency plans.

In this context, Brazil appears as the most industrialised country in South America. It has a huge territory of 8,512 thousand square kilometres and a coastline of about 8 thousand kilometres along the Atlantic Ocean. From the economic point of view, 95% of the total Brazilian exterior commerce is transported by sea, which amount to about one hundred billion of US dollar per year, including exports and imports, but

not including freight costs, which is about six billions US dollar per year. Considering this intense maritime commerce and the fact that Brazil has signed the Convention, the implementation of the OPRC Convention is an important contribution to improve the preparedness, response and co-operation for major oil spills.

The main objectives of this work are:

1- To describe the importance of the preparedness, response and co-operation between States, in case of a oil spill casualty.
2- To analyse difficulties and problems in the implementation of the OPRC Convention in Brazil.
3- To analyse in the scope of the OPRC Convention, the reimbursement of costs of assistance and the expansion of the scope of the convention to include hazardous and noxious substances.
4- To determine and suggest a rational method to implement the OPRC Convention, that can attend the current necessities of Brazil.

To reach the above proposed objectives some important contacts have been made, as for example the Brazilian Directorate of Ports and Coasts (DPC) of the Ministry of Navy, which is the only representative to IMO regarding Brazilian Territorial Waters, the Brazilian Representative in IMO and the Vice-Chairman of The OPRC Working Group. A deep study of the OPRC Convention was essential to make possible the development of this dissertation. Internet was also considered as a good source of up to date material for the research, mainly concerning the Brazilian Government data.

This dissertation was developed in four main chapters, which were considered sufficient to describe, analyse and suggest solutions to the Brazilian implementation of the OPRC Convention. The next chapter (chapter 2) describes the OPRC Convention, with its contents, controversial matters presented in its conference and the reasons and

benefits to adopt the convention. Chapter 3 is particularly important, because it describes and analyses the Brazilian Maritime Administration, its main characteristics and problems. Chapter 4 presents what has been done in Brazil in relation to the Implementation of the OPRC Convention. Finally, chapter 5 suggests important points for the rational implementation of the OPRC Convention.

The author intends to reach a good level of understanding of the Brazilian problems in relation to the implementation of such an important convention in the matter of marine pollution prevention. It is relevant to take into account that the problems presented by Brazil can be found in many different developing countries. In that sense the present dissertation could be a modest contribution to the global solution of these matters.

2. OPRC CONVENTION

The International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990, had its first draft made in November 1989, as a result of a conference of leading industrial nations (known as G7) in Paris in July of the same year. This conference called upon IMO to develop further measures to prevent pollution from ships. After draft work was completed the OPRC Convention was adopted on November 30, 1990 and entered into force on May 13, 1995.

2.1 Brief Description of the OPRC Convention

Environmental matters have been the focus of an increasing general interest. In spite of this fact, several oil spills have occurred in recent decades (Etkin, 1997), generating, in most cases, actual catastrophes. As a result, technicians and experts have been pushed to produce objective solutions in the field of marine pollution prevention and response. After some initiatives the IMO Assembly "recognising the severity oil pollution incidents, decided to convene an international conference on oil pollution preparedness and response" (International Maritime Organisation, 1990*b*).

The purpose of the OPRC Convention, through its rules, procedures and guidelines, is to provide a global framework for international co-operation in combating major oil spill incidents or threats of marine pollution. Contracting states are required to establish measures for effective response to control the pollution incidents, which can be nationally or in co-operation with other countries. They are also required to be prepared to minimise the damage caused by oil spills. Ships and

operators of offshore units, under the jurisdiction of the State Party, are required to have an oil pollution emergency plan, with the content developed by IMO.

An important aspect of the OPRC Convention is the possibilities of receiving assistance and support from shipping and oil industries, considering that these sectors are the principal origin of marine pollution (Munir, 1991). Furthermore, they have the necessary monetary resources.

The OPRC Convention is a very important initiative of IMO, which takes advantage of the past experience gained during the application of other agreements and arrangements in the marine environment. It fulfils the actual needs, at the same time that it contributes to the improvement of marine pollution prevention.

2.2 Adoption of the OPRC Convention

"The right to the environmental protection is characterised for a fundamental idea: it treats of pluri-individual interests (widespread interest) that can excel the traditional notions of individual or collective" (Machado, 1995). These pluri-individual interests can be seen in this context as the experts and authorities dealing with marine pollution and the public opinion in general, affected by the visual effect of large oil spills, presented through the communication media. The visual impact has shown to be very effective in shocking the pluri-individual interests, initiating an uncomfortable situation of anxiety on the need to introduce changes in the present arrangements to combat marine pollution accidents.

Some years before the beginning of procedures to adopt the OPRC Convention, large oil spills occurred, as example, "Amoco Cadiz" (North West Coast of France, 1978), "Aragon" (Madeira Island, 1989), "Exxon Valdez" (Alaska, 1989). "Exxon Valdez" is considered the most expensive oil spill in history. One year after the accident, Exxon had spent about 2 billion US dollars (Lloyd's Shipping Management, 1995). Taking this fact into account, the accident and the clean up operations will be described here at a certain level of detail.

Shortly after midnight on March 24, 1989, the Exxon supertanker "Valdez" made landfall in Prince William Sound, Alaska, running a ground on the Bligh Reef, where occurred a spill estimated in 40,000 tons of North Slope Crude oil. It was the largest tanker spill in United States history. That spring, the oil moved along the coastline of Alaska, contaminating portions of the shoreline of Prince William Sound, the Kenai Peninsula, lower Cook Inlet, the Kodiak Archipelago, and the Alaska Peninsula. Oiled areas include a National Forest, four national wildlife refuges, three national parks, five state parks, four state critical habitat areas, and a State Game Sanctuary. Oil eventually reached shorelines nearly 470 miles Southwest from Bligh Reef where the spill occurred. The spill area included all of the shoreline oiled by the spill, severely affected communities, and adjacent uplands to the watershed.

During 1989, Exxon and the federal, state, local and regional agencies and organisations worked to mitigate the disaster.

The response effort involved lightening of unspilled cargo, vessel salvage, booming of sensitive areas (70 miles of booms were deployed), beach surveys and assessments, over flights to track the floating oil, skimming of floating oil, cleanup of oiled beaches, wildlife rescue, waste management, logistics support and public relations. Major cleanup operations were conducted during the spring and summer of 1989-1992. Thousands of workers were involved in cleanup and logistics support operations that included hundreds of vessels, aircraft and a substantial land-based infrastructure. In 1989, cleanup efforts involved more than 11,000 people and 1,400 marine vessels. Techniques used to remove or clean oil included: burning, chemical dispersants, high pressure/hot water washing, cold water washing, manual and mechanical removal of oil and oil laden sediments, bioremediation.

Bioremediation is the activity to apply nutrients, oil-degrading bacteria plus nutrients or artificial bacteria and nutrients to some oiled shorelines to increase the activity of oil-metabolising microbes (Pardo, 1999). In the case commented above, fertilisers as nutrients were used to enhance a natural biodegradation.

According to Lloyd's Shipping Management, 1994, it was pointed out that:

- The oil recovered by skimming operations in 1989 accounted for about 8.5% of the original spill volume.
- Cleanup operations on the beaches during the first four summers led to the recovery and disposal of approximately 31,000 tons of solid oily wastes which were estimated to account for 5 to 8% of the original spilled oil.
- Natural processes (storm erosion and biodegradation) removed about 90% of the oil in surface (less than 25cm) beach sediments during winter 89-90, whereas only about 40% of the deeper oil were removed.
- By 1992, the combination of natural processes and cleanup activities had eliminated nearly all of the surface oil, though small amounts persisted along many shoreline segments in the Sound.

Serious accidents, as previously described, have much probably influenced the decision of the leading industrial nations to hold a conference in Paris, in July 1989. The conference called upon IMO to develop further measures to prevent pollution from ships. Consequently, the IMO Assembly agreed to develop a new convention. The Resolution A.674(16) (IMO, 1990*b*), adopted for this purpose requested the IMO Marine Environment Protection Committee (MEPC) to develop a draft international convention on oil pollution preparedness and response.

In March 1990, The MEPC in its 29th session prepared a draft text convention, which was again discussed at a preparatory meeting held at IMO in May 1990.

After this process, a diplomatic conference was held at IMO headquarters from 19 to 30 November 1990, which adopted the Oil Pollution Preparedness Response and Co-operation Convention (OPRC) and ten Assembly Resolutions.

IMO Conventions are always adopted by the official representatives from State Parties present at the conference convened for this purpose. Those representatives, at the end of the conference, sign the convention. After that it is open for accession, ratification, acceptance or approval (Pardo,1998). It is important

to remember that the signature is not mandatory to the representatives present at the conference.

For a better understanding of the above paragraph, some legal terms will be described in item 2.2.1.

2.2.1 Legal Terms

- **Ratification**

This word has many different senses, of which the following can signify:

1. The act of the appropriate organ of the State, be it the Sovereign or a President or a Federal Council, which means the willingness of a state to be bound by a treaty.
2. The international procedure whereby a treaty enters into force, namely the formal exchange or deposit of the instrument of ratification.
3. The actual document, sealed or otherwise authenticated, whereby a state expresses its willingness to be bound by the treaty.
4. Popularly, the approval of the legislature or other state organ whose approval may be necessary; this is an unfortunate use of the word and should be avoided.

- **Accession**

1. An accession to a treaty is an act by which the provisions of the treaty are formally accepted by a state on behalf of which the treaty has not been signed or ratified.
2. Unless otherwise provided in the treaty itself, a state may accede to a treaty only after the treaty has come into force and only with the consent of all the parties to the treaty.
3. A treaty may designate the organ of a state by which an accession shall be executed by that state; in the absence of such a designation, an accession may be executed by any authorised organ of the state.

4. An accession becomes effective only when it is deposited or communicated.

Upon the making of a valid accession the acceding state becomes, in the absence of provision to the contrary (apart from the question of reservations) as fully a contracting party as the original contracting parties, with same right and duties.

- **Acceptance**

The use of this new terminology, as it is believed, which is propositaly non accidental, is firstly to the general tendency toward informality and the use of non-technical words, and secondly, to the fact that the word “ratification” gives rise in the case of some states to constitutional difficulties, which it is possible to by-pass by the use of the word “acceptance”.

2.3 Content of the OPRC Convention

The OPRC Convention, as other IMO conventions, has the usual common parts: preamble, definitions, amendment procedures, provisions for signature, accession and entry into force, procedures for denunciation, depositary arrangements and languages used, in addition to some specific technical aspects to this convention.

The list below intends to show the most important technical aspects to the OPRC Convention.

- Compromise to undertake, nationally or in co-operation with other countries, all necessary measures to prepare for and respond to an oil pollution incident.
- Ships and operators of offshore units, under jurisdiction of the parties, are required to have onboard an oil pollution emergency plan, which has the content developed by IMO.
- Requirement for ships to report incidents of pollution to coastal authorities and the convention details the actions that are then to be taken.

- Obligation, in case of pollution report, to inform as fast as possible to other States whose interests are or likely to be affected.
- Establishment of stockpiles of oil combating equipment, the taking of oil spill fighting exercise and the development of detailed plans and communication capabilities for dealing with pollution incidents.
- Provisions for the establishment of national systems for responding to oil pollution should contain at least the following items:
    1. In matters related to the present convention, a competent national authority for oil pollution response, national contact point and authority entitled to act on behalf of the State must be designated.
    2. National contingency plan for preparedness and response to oil pollution.
    3. Mechanism to co-ordinate the response to an oil pollution incident.
    4. Information to IMO on the national arrangements, contingency plans, equipment and expertise that may be available to other States upon request.
- Establishment of procedures for international co-operations in case of oil pollution spills.
- Contracting States agree to co-operate in the promotion and exchange of researches results and development programmes in marine pollution matters. Also, technical co-operation and transfer of technology for those State Parties which request such assistance.
- Promotion of bilateral and multilateral co-operation.
- IMO will perform, subject to its agreement and the resources available, the following functions and activities, for the OPRC Convention:
    1. Promotion of information services, education and training;
    2. Provision of technical services and technical assistance to the States upon request in case of large oil spill accident.

The OPRC Convention presents ten resolutions, from which the Resolutions 5 to 10 are the most import, in this context of the description of the convention, and will be discussed in sequence.

Resolution 5. *Establishment of oil pollution combating equipment stockpiles*

This proposes co-ordination between IMO, UNEP (United Nations Environment Program) and the oil and shipping industries for assistance to developing countries in the establishment of national systems of response to oil spill incidents and oil pollution combating equipment stockpiles.

Resolution 6. *Promotion of technical assistance*

This encourages State Parties, IMO, industry programmes, international and regional organisations to strength actions for assistance to developing countries in the following matters: training; availability of technology, equipment and facilities; joint research and development programmes.

Resolution 7. *Development and implementation of a training programme for oil pollution preparedness and response*

This is an invitation to State Parties, IMO, industry programmes, international and regional organisations to promote a development and implementation of a training programme for oil pollution preparedness and response.

Resolution 8. *Improving salvage services*

In order to prevent or minimise damage to the marine environment, this resolution requests State Parties to review the availability of the salvage capacity to carry out salvage operations.

Resolution 9. *Co-operation between States and insurers*

This requests marine insurers' technical experts and advisers to co-operate with Members in exchanging technical information to permit effective response in the occurrence of an oil spill incident.

Resolution 10. *Expansion of the scope of the International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990, to include hazardous and noxious substances*

This resolution is an invitation to IMO to develop an appropriate instrument to allow the OPRC Convention is expanded to apply to marine pollution incidents

involving hazardous and noxious substances. It was a very controversial matter in the conference, and will thus be commented on in depth in the next chapter.

Figure 2.1 illustrates the structure of the IMO Bodies and the consequent relation with the OPRC Convention.

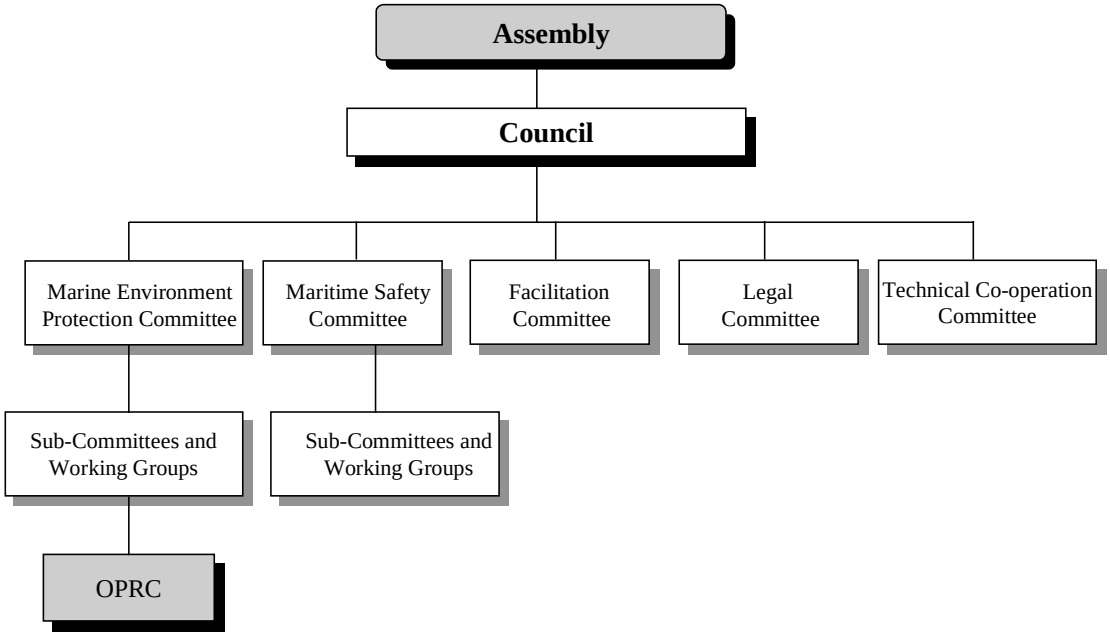

Figure 2.1: Structure of IMO Bodies
(Source: Pardo, 1998)

2.4 Reasons for and Benefits from the Adoption of the Convention by Industrialised and Developing Countries

It has been said that the OPRC Convention is a convention for developing countries. However, in large accidents resulting in caustic oil spill, the experience has demonstrated that even the most industrialised countries have trouble in dealing

with the pollution. Usually, external assistance and co-operation for response operation is needed.

Since the 60's a notable number of regional, bilateral and multilateral initiatives have been carried out in some areas of the world, which have resulted in the adoption of significant agreements (Pimentel, 1989). The European area has some important agreements, as in the following examples:

- Bonn Agreement (Norway, Belgium, Germany, the Netherlands, the United Kingdom, France and the European Union).
- Community Action Plan on Marine Pollution, it was adopted by the European Union and is applied for the Members States of the EU. This plan includes a Task Force on Marine Pollution, training programmes and pilot projects.

There are some other regions in the world that are not covered by such agreements, usually regions formed by developing countries, which makes it difficult to have co-operation and mutual assistance in the case of large marine pollution accidents.

The adoption of the OPRC Convention is a very important action for improving the possibilities of mutual co-operation and assistance between countries and regions. It is especially important in those areas of the planet where no regional, bilateral or multilateral agreements or conventions exist.

Another important element provided by the convention, which is interesting for both industrialised and developing countries, is the possibility of a prompt and effective action with the appropriate combating means to minimise the damage that can result from the pollution. International assistance that can carry out the effective action of response in case of accident may provide the appropriate combating equipment and trained personnel.

There are some requirements for States, which have signed the convention to ratify it, such as the existence of national contingency plans and the definition of the National Authority responsible for marine pollution matters and oil spill combating equipment. It is difficult for developing countries to comply with these requirements,

because, usually, they do not have the necessary domestic structure. For example, to develop a national contingency plan it is necessary to have expertise and competent personnel, who spend time and money on being prepared. Furthermore, the capital required for the implementation of the plan is high. Sometimes, the amount of money that should be used for these matters is also required for the basic needs of the population, such as food, education and shelter.

The difficulties discussed above seem not to be present in industrialised countries. However, to keep equipment and expertise for oil pollution preparedness and response, which may be available to other States in case of major incidents, is also expensive to these countries. It is important to consider that someone must pay for the cost of assistance. This fact is a controversial matter for the OPRC Working Group and will be discussed in the next section.

The contracting parties of the OPRC Convention are expecting that the mutual assistance provided by the convention can help not simply the developing or the industrialised countries, but also the marine environment with the exchanging of experiences among them. They are also expecting to be prepared for an effective and prompt response action in case of a very large oil spill that can happen at any time.

2.5 Controversial Matters Discussed During The OPRC Conference

Some topics were deeply discussed during the OPRC Conference and were show to be controversial and difficult matters for the Contracting Parties. They are as follows:

- Expansion of the scope of the OPRC Convention to include hazardous and noxious substances.
- Reimbursement of costs of assistance.
- Establishment of an International Centre.

The next section will present a brief explanation of these matters.

2.5.1 Expansion of the scope of the OPRC Convention to include hazardous and noxious substances

The OPRC Convention, as is indicated in its title, applies only to oil pollution incidents. However, other substances transported by sea, for example chemicals, can also cause severe pollution, even with worse consequences than those produced by oil.

During the conference, some delegations proposed that the convention should apply to other pollutant substances different to oil.

Long discussions were held about this topic. Those in favour of the inclusion of hazardous and noxious substances in the scope of the convention justified their position in the fact that incidents involving those substances present similar effects to oil in the marine environment. Also, response equipment, arrangements and, in many cases, combating techniques have factors in common. Actually, except for some equipment and expertise, the structure for combating oil pollution is used for combating pollution produced by other noxious substances.

The position of some representatives against the inclusion of harmful substances is based on the lack of a convention that can cover liability and compensation for pollution caused by hazardous and noxious substances. However, there are two important conventions, since 1969 and 1971 respectively, covering possible compensation for oil pollution damage. The conventions are as follows:

- International Convention on Civil Liability for Oil Pollution Damage (CLC 1969).
- International Convention on the Establishment of an International Fund for Compensation of Oil Pollution Damage (FUND 1971).

After a long debate, even without the conference participants reaching a consensus on the expansion of the scope of the convention, it was decided to adopt a resolution based on the expansion of the scope of the OPRC, 1990, to include hazardous and noxious substances, that invites the IMO to begin work for that purpose.

The situation about this subject is easy to solve, at this moment, as on May 03, 1996 an "International Convention on Liability and Compensation for Damage in Connection with the Carriage of Hazardous and Noxious Substances by Sea" (HNS, 1996) was adopted. Since the date of the adoption of the OPRC Convention until now, the MEPC and the OPRC working group have been considering this matter. It is in an advanced state of development with a draft proposal to adopt a protocol to amend the OPRC Convention to include hazardous and noxious substances.

2.5.2 Reimbursement of Costs of Assistance

This subject involves economic commitments and as a result, it was a topic for discussion and different positions. On the one hand there were the developing countries willing to obtain some benefits from the convention, asking for assistance from other countries or from the shipping and oil industry. On the other hand, there were the countries with good arrangements for combating oil pollution who were in the position to offer assistance but trying to get some benefits from such co-operation.

An agreement that would satisfy both parties was very difficult to reach. It was thus decided to include this topic as an Annex to the convention, which contains some guidelines to deal with the reimbursement of expenses in the case of external assistance. Summarising, these are the possibilities suggested by this Annex:

- Existing previous bilateral or multilateral agreement.
- Mutual agreement between the States concerned on a case by case basis.
- If one party in the convention requests assistance from another party, the requesting party shall reimburse the costs of assistance.
- If the party takes action on its own initiative, it shall bear the costs of its action.

2.5.3 Establishment of an International Information Centre

The Assembly Resolution A.674(16) (International Maritime Organisation, 1990*b*) requested IMO to identify the requirements for the establishment of an International Information Centre within, or under the auspices of, the IMO.

Once again, the additional costs for IMO Member States to keep running this centre was the main point of discussion on this matter. Participants in the conference were reluctant to make commitments on such additional costs to be supported by their Administrations.

The discussions on this subject lead to a final decision to leave the option more or less open for IMO to establish some arrangements similar to an information centre, but "subject to its agreement and the availability of adequate resources to sustain the activity".

3. THE BRAZILIAN MARITIME ADMINISTRATION

The structure of the Brazilian Maritime Administration will be described in this chapter; it will include the status of IMO conventions in Brazil and comments about some conventions that are important to this work. Related to these topics, the implementation of international conventions in Brazil will be discussed, trying to clarify the complete process. However, to achieve a better understanding, a brief introduction about the implementation of international conventions, in general, will be made.

3.1 History

There is no country with the sea as a natural boundary that has no interests in maritime affairs (Plant, 1998). Such interests are usually results of needs, possibilities and the culture of the citizens. Such factors, together, form the *maritime policy* of the country. The aims (politic, economic and military) to be achieved need a well-defined *maritime strategy* that can prepare and use the *maritime power*. This power, which has an extremely wide concept, is constituted of everything that is related with inland or maritime navigation, fishing, petroleum exploitation on seabed, nautical sports, shipping industry, the governmental policy and the most important thing, the maritime vocation of the citizens. Finally, it is important to mention the navy, which enforces the maritime power of the country, and its mission is to defend the interests of the nation on the sea, guarantee the integrity and sovereignty. Through the navy, the country assures the right to the economic and strategic use of the sea.

In Brazil's case, the maritime interests are wide and historical. The sea was our way of discovery, colonisation, independence consolidation and commerce, besides being the place of the sovereignty's defence in many episodes, including two world wars in this century (Marinha do Brasil, 1999*b*).

The Brazilian territory occupies 47.3% of the total South American continent and 17% of the world's land. Furthermore, its coastline is one of the longest in the world.

In the economical point of view, 95% of the total Brazilian exterior commerce is done through the sea, which amount to about one hundred billion of US dollar per year. Ships of foreign flags are responsible for the majority of this transport.

To support this, Brazil needs to have a well-structured Merchant Marine and Navy. This is possible through the Brazilian Maritime Administration. The above mentioned points will be discussed in detail in the next section.

3.2 The Maritime Administration Structure

Brazil is a Federal Republic, where each Brazilian state has its own constitution and is autonomous within the federal control (see figure 3.1). The maritime administrative body is the Directorate of Ports and Coasts (DPC) of the Ministry of Navy. Under national law, this Directorate is the only representative to IMO regarding Brazilian territorial waters. The main purposes of the DPC are (Marinha do Brasil, 1999*a*):

i. To co-ordinate the orientation and control of the Merchant Marine and its activities, in respect of the national defence.

ii. To co-ordinate the safety of maritime and inland navigation.

iii. To co-ordinate pollution prevention caused by ships and terminals.

iv. To co-ordinate the formulation and execution of national policies related to the maritime activities, in accordance with IMO Conventions.

v. To co-ordinate the implementation and fiscalisation of Laws and Regulations on the sea and in internal waters.

vi. To co-ordinate the qualification of the Merchant Marine personnel.

These functions are concerned with the following (Marinha do Brasil, 1999*c*):

(a) Surveys, inspections and certification of ships.

(b) Installing and up-keeping navigational aids in coastal waters and inland rivers.

(c) Training, examination and certification of seafarers.

(d) Conducting inquiries and investigations into shipping casualties.

(e) Dealing with matters pertaining to maritime search and rescue.

(f) Attending international, regional and local conferences and seminars on maritime related matters.

(g) Advising the government on maritime matters within the directorate's jurisdiction.

(h) Responsibility for implementing port state control.

(i) Dealing with matters pertaining to pollution prevention at sea.

(j) Training, examination and certification of fishermen, port workers and pilots.

(k) Determining the minimum number of crew for any national vessel.

(l) Registering Brazilian ships.

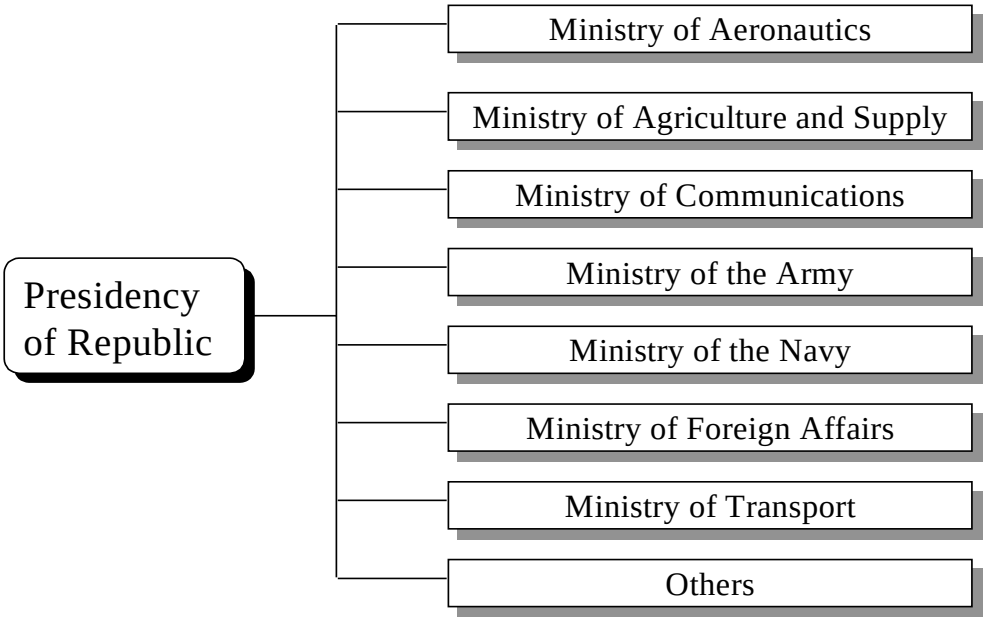

Figure 3.1: Ministries of Brazilian Government
Source: Governo do Brasil, 1999*a*

To carry out its work, DPC is represented by two maritime academies, captaincies, delegacies and agencies, located throughout the country, covering the complete coastline and around 50,000 km of navigable inland waters (Oliveira, 1997). The organisations that represent the DPC receive technical guidance from it in matters related to safety of life at sea, navigational safety, pollution prevention at sea and professional maritime education (see figure 3.2).

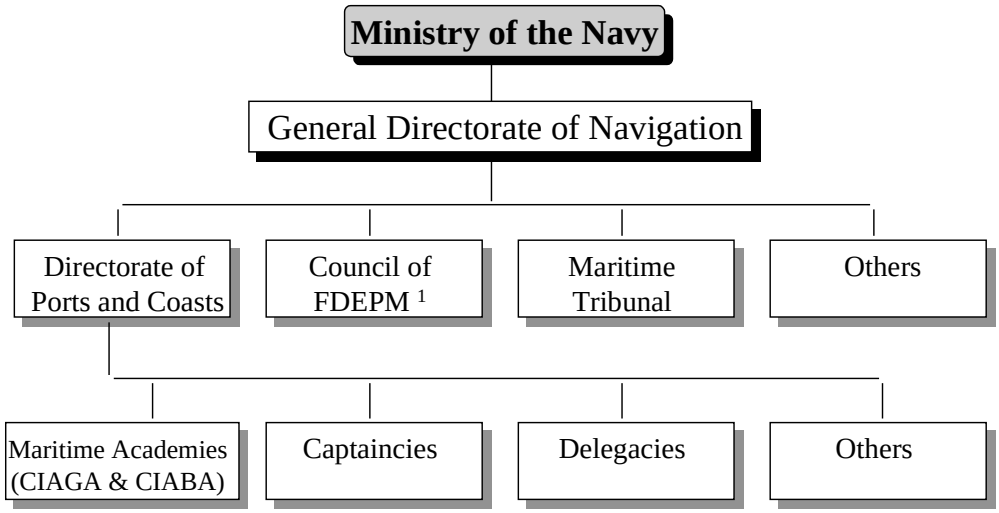

Figure 3.2: Structure of Ministry of the Navy

[1] Fund for Development of the Maritime Professional Education

Some years ago, the DPC performed all the jobs locally. In some departments of the Directorate, surveys of ships have been carried out without suitable training of the officers responsible. This still happens regarding accidents involving small ships in the Amazon River. An accident occurred in Rio de Janeiro, in January 1992, with the small passenger ship "Bateau Mouch", where more than one hundred people died. This fact was responsible for promoting a regional concern about safety at sea. Therefore the Directorate started formal training for inspection officers and surveyors, which was based on the IMO Model Courses for Surveys.

A Fund for the Development of Maritime Professional Education (FDEPM) was established, after the promulgation of the Maritime Education Law, to give economic support to the education and training of maritime industry workers. The maritime industry has made a compulsory deposit of 0.02% of their monthly employer payroll to this fund. The Directorate of Ports and Coasts is the executive branch authorised to manage the money of the Fund on maritime education. All

expenses have to be authorised by the Council of the FDEPM, which is formed by interested parties, like the Navy and professionals in the maritime industry. This Fund is an important point, which makes the difference between the Brazilian Merchant Marine, which is co-ordinated by the Ministry of Transport, and others (Alvarez, 1997) in Latin America (see figure 3.3). It is important to take into account that the Ministry of Transport also co-ordinate the Department of Ports, which is responsible for the administration of the Brazilian ports and it is not related to the Ministry of Navy as the Directorate of Ports and Coasts (DPC).

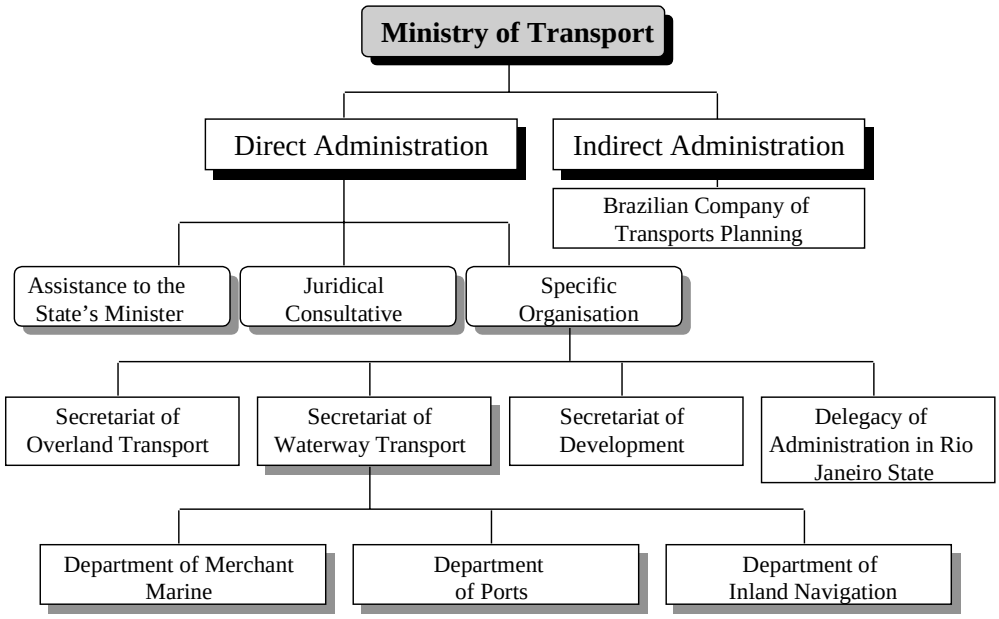

Figure 3.3: Structure of Ministry of Transport

The Directorate of Ports and Coasts has continued to provide, through some of the Port Captaincies, courses for port workers, even after the promulgation of Port Law. The training and qualification of the port workers is the responsibility of the Management Organ of Labour (OGMO). For specialised port workers in the use of various types of cargo handling equipment, the OGMO works out a plan for the training of them. They train both, new workers and already registered workers.

The Directorate of Ports and Coasts compiles rules and norms for the use of the capital of the Fund for the Development of Maritime Professional Education (FDEPM) in training programs for port workers. The Captaincies and Delegacies analyse the proposals made by the Management Organ of Labour (OGMO). The maritime education programs are congregated by the Directorate, which also authorises the Captaincies to sign administrative agreements with OGMO's.

Fishing is under the responsibility of the Ministry of Agriculture and Supply and the Ministry of Navy. The former controls fish exploitation, determining where and when fishing is allowed. The latter is responsible for the safety of life at sea. The Directorate of Ports and Coasts must supervise the instruction centres, Captaincies and Delegacies, which implement the training courses for fishermen and issues a seaman book that is compulsory.

All search and rescue operations are under the responsibility of the Ministry of Navy in the area designed as the Brazil-SAR. The effective implementation depends on the Ministry of Communications, which is in charge of the Coastal Radio Stations. The Captaincy and/or the Delegacy are directly involved in a SAR operation, in case of casualty.

The Directorate is responsible for making inquires whenever a casualty happens. The Captaincy and/or the Delegacy should carry out the technical inquiry for the area where the casualty has occurred. The Captaincy and/or the Delegacy forward the conclusion of the technical inquiry to the Directorate. The inquiry is analysed by the experts of the DPC and, depending on its implications, a process is open and sent to the Maritime Tribunal. The creation of this Tribunal was done under the national law number 2181, promulgated in February 1954, and the Ministry of Navy is responsible for it.

The creation of the Brazilian Coast Guard could be an initiative to improve the Maritime Administration in Brazil. However, the government, who has the overall say relating to maritime affairs is resisting doing this. The Brazilian Coast Guard should be the solution for the harmonisation. Its structure must be such that it

is workable to fulfil the needs of the industry. The Minister of the Navy has given the major contribution in solving the problems related to maritime affairs and is amply incorporated in this process. However, other important ministries, such as the Ministry of Transport and Communications, do not give the necessary priority to maritime affairs on the contrary, this is listed as one of the last items of its lists.

A few years ago, the Port Administration and the transportation system in Brazil used to be the majority of State owned companies. However, a new legislation has expanded the private sector opportunities significantly in Brazil's transportation systems.

According to the Brazilian Government Homepage in Internet (Governo do Brasil, 1999*b*), the Department of Merchant Marine operates with long-range vessels, which moved some 265 million tons of bulk and general cargo through Brazilian ports during last year. The Brazilian merchant marine carried 26.8% (71 million tons), 5.68 million tons on its own vessels and 65.32 million on chartered ships. The total annual movement should reach some 500 million tons by the year 2010. Considering the need to renew and modernise the ships, to absorb the tonnage being chartered, and to increase national flag participation to 35% of the trade, the Brazilian fleet of 4.8 million gross tons should expand to 20 million gross tons by the year 2010. This would represent an increase of 1.4 million gross tons per year and would require some R$20 billion in investments.

The coastal cabotage and interior shipping is a very important figure for the Brazilian economy. About 42 million tons of cargo is moved in the coastal cabotage trade each year, and some 6 million tons along the interior waterways. By the year 2010, about 115 million tons will be transported in the coastal cabotage trade and 22 million tons on the interior waterways. This expansion will require investments of approximately R$12 billion over the next fifteen years.

The ports, which are administrated by the Department of Ports, generally old installations and sometimes located in historic urban areas, often have difficulty modernising because they frequently lack the space required for today's maritime

transportation systems (Japan International Co-operation Agency, 1995). On the other hand, their present locations represent very valuable real estate. Thinking about the need to earn a return on these assets, the Brazilian government has instituted the Ports Revitalisation Program (PNDAE).

The port system requires an estimated $1 billion of investments in the next four years, $500 million for infrastructure and the rest for equipment. In recent years, the Brazilian government has invested $200 million in the ports and expects to invest $50 million in 1999 (Moreira, 1999). The combination of last year's Port Modernisation Law, the new Law of Concessions and this year's constitutional amendments will enable national and foreign capital to invest in all phases of the port sector.

Another important sector of transport in Brazil is the waterways, under the administration of the Department of Inland Navigation. The government plans to invest R$900 million during the next four years on 40,000 km of Brazil's principal waterways. Done in partnership with the private sector, these investments will permit the maintenance of this system and the construction of multimodal terminals at a cost of R$6 million each. An investment of R$100 million is already planned for the next two years to guarantee the year round navigability of the 2,240 km Araguaia Tocantins waterway.

Unfortunately, the maritime administration legal framework has not adjusted its operation to accommodate the changes that are constantly present in the shipping industry, both locally and internationally.

It is important to mention that even with the problems discussed above, the Brazilian Maritime Administration has a good position within the Latin American countries and presents some characteristics that are not encountered in them, like the Fund for the Development of Maritime Professional Education (FDEPM).

3.3 Implementation of International Conventions in Brazil

In this item the process of implementation of international conventions in Brazil will be described, although for promoting a better understanding, it will start explaining the general methods of implementation. After that it is possible to concentrate on the Brazilian method.

3.3.1 Implementation of Conventions

Until this moment, it was considered known the meaning of the word "convention", however, to clarify the ideas it will be defined here in a simple and objective way. According to the Vienna Convention on the Law of Treaties, article 2, a treaty can be defined as "an agreement whereby two or more states establish or seek to establish between them a relationship governed by international law". "Convention" is the most significant title among the variety of titles given to the general term "treaty".

To become a party to an international convention, a State first passes through the process of ratification or accession. The legal affect of it is that the State becomes bound by the convention and then is therefore obliged to implement it by incorporation into its body of national law (Marine Policy, 1990). The State, which has become party of an international convention, can benefit from the application of that law within its jurisdiction just after the essential step of the convention implementation. Before this important step, the State is not allowed to have the appliance of that law in its jurisdiction. It is very important to take into account that the domestic constitutional law, or other superior law of general application such as a Civil Code or Judicature Act, governs the application and effect of international conventions within the domestic legal order.

There are basically two methods of implementation of international conventions (Mukherjee, 1998) that will be described briefly in the following paragraphs.

- **Monistic Method**

In this method, provided by the domestic constitutional law, an international convention may become part of the domestic law just as a consequence of its ratification or accession by the State. In such a case, virtually, there is no legislative action required for implementation. As some examples of jurisdictions that subscribe to the monistic method of convention implementation are Belgium, France, Netherlands, Spain and The United States of America. However, with respect to certain types of treaties, some form of approval by the Legislature is required. In the Netherlands and Spain, only after a official publication, a treaty ratified or acceded becomes binding domestically. Unfortunately, the process of publication can spend many years.

- **Dualistic System**

Where some form of legislative action is required for the implementation of an international convention, the dualistic method is said to prevail, following its ratification or the domestic draftsman's perspective. An important question that arises here is what rules of interpretation are to be applied, domestic or international, in attempting to determine the intentions of the law-maker? In other words, what is the process by which intent is determined?

Among different opinions, the most usual, even in the English jurisdiction would appear to lie in favour of applying international, rather than domestic rules of interpretation in building international maritime conventions.

3.3.2 The Brazilian Method of Implementation of International Conventions

The method utilised by Brazil for the implementation of international conventions is the Dualistic System that was commented on in the previous section. The system follows the steps that are described as follows (Rocha, 1999):

1. The agreement or treaty is signed by Brazil, normally through the person of the ambassador, with the intention to show the interest in becoming party to the international instrument.
2. The agreement or treaty is then ratified by the National Congress that with this act, accepts that Brazil becomes party to the instrument. Usually, this step takes quite a long time due to the low priority of the agenda in the Congress.
3. Brazil, through the Ministry of Foreign Affairs, addresses to the International Organisation, which has generated the agreement or treaty, an instrument of ratification.

It is very difficult to define the necessary time for carrying out all the steps of this process. The longest step is usually the ratification by the Congress. The time used by the ratification process is similar in every state. As an example, the president of the United States of America, Bill Clinton, is currently "fighting" with the American Congress to obtain the Fast Track, which is nothing more than an authorisation to the president to ratify the treaties in the name of the Congress. This is not allowed in Brazil.

Concerning the process of domestic implementation in Brazil, after the ratification of a treaty or an agreement, this is quite difficult to define. The ministries involved in the matter of the treaty or agreement are responsible for working together or in parallel making possible the proposition of the legislation or, simply, getting to comply with what was agreed.

In the case of IMO matters, a Co-ordinate Commission of Affairs of the International Maritime Organisation (CCA-IMO) was created recently, involving many ministries. It is co-ordinated by the Ministry of the Navy. The Regulation of

the CCA-IMO is in the final phase of approval. The Ministries components of the CCA-IMO are also parties of an Interministerial Group. The main functions of the Interministerial Group are defined to be as following:

- Address to the competent organisations of the government proposals of the policy and measures to be internally implemented in the country as a result of compromises assumed by Brazil in IMO.
- Accompany the implementation of the actions or measures related to the compromises assumed by Brazil in IMO.

4. THE IMPLEMENTATION OF OPRC IN BRAZIL

Brazil presents some challenges to those who have the responsibilities to protect the marine environment.

The Brazilian coast is one of the longest in the world, about 8,500Km along the Atlantic Ocean, in addition to the extensive inland waters that help the promotion of the inland and maritime commerce. Brazil's territorial boundaries run for 23,086km, of which 7,400km on the Atlantic Ocean coastline (Marinha do Brasil, 1999*b*). To the north, west and south, Brazil has boundaries with almost all South American countries except for Chile, Ecuador and Trinidad and Tobago. The Brazilian geographic configuration, easterly bordered by the Atlantic Ocean from north to south, its continental and relief features, associated to atmospheric system dynamics, conditions a vast climatic diversity. Its population is concentrated in the coastal areas and about 96% of its exterior commerce is done through the sea (see figure 4.1), with an estimated flow of 16,000 ships per year. Ships of foreign flags realise the majority of this transport.

Figure 4.1 Brazil's Total Seaborne Trade (Source: Fairplay 1997)

Despite the Brazilian production of petroleum being 60% of its needs, from which the biggest part is exploited at sea, it still depends on the intense importation of this product. Nevertheless, the decision to reduce the dependence on external energy supply as of 1979 resulted in a decrease in the net imports of crude oil and petroleum products from almost one million boe/day (1979), representing a 85% dependency to around 654,000 boe/day in 1995, a 48% dependency. In 1998, the annual movement of petroleum and derivatives was about 95 million tons (PETROBRAS, 1998). The following figure shows the distribution in percentage of petroleum within the group of primary energy consumption and production at the end of 1998.

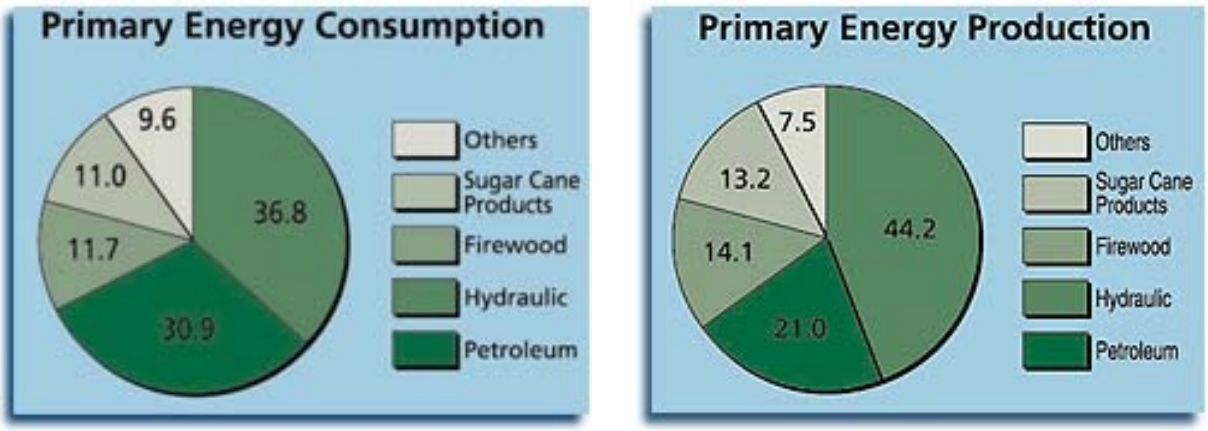

Figure 4.2 Brazilian Primary Energy Production and Consumption (Source: Ministry of Mines and Energy, 1998)

However, the statistics of oil spill in Brazil are not as catastrophic as they could be, which can not properly be considered the reason for the tranquillity of the Brazilian government. For example, in 1998, 27 occurrences of oil spill were registered, the majority of which had a volume of less than one ton (PETROBRAS, 1998). The two biggest, with a volume of 108 tons and 15 tons, occurred in Rio de Janeiro and São Paulo, respectively.

A considerable part of these oil spills in Brazilian Territorial Waters come from the international discharge of ships in transit, usually dirty ballast water and oily mixtures. It is a criminal action that, unfortunately, some shipping companies and shipowners do not repress energetically. Recent studies of the United States National Academy of Science show that these discharges are exceeding in volume the oil spills that result from accidents with tankers. The following table summarises a group of factors related to the Brazilian Oil Industry.

Table 4.1 Main Data and Statistics of the Brazilian Oil Industry (Source: PETROBRAS, 1998)

Proven Reserves		
Oil + Condensate*		4,8 billion bbls
Gas*		157,7 billion m^3
Oil + Condensate		6,7 billion bbls
Gas**		223,6 billion m^3
Discovered Reserves (*/**)		
Oil + Condensate		11,6 billionbbls
Gas		398,4 billion m^3
Average Daily Production		
Onshore Oil	214,350 bbl	
Offshore Oil	674,140 bbl	Total: 888,500 bbls
Gas Onshore	9,3 million m^3	
Gas Offshore	17,5 million m^3	Total: 26,8 million m^3
Production Platforms		
Fixed	78	
Floating Systems	15	Total: 93
Pipelines		
Oil	6,849 Km	
Gas	4,264 Km	Total: 11,113 Km
Tanker Fleet		
Number of Vessels		73
Tonnage		4,6 million dwt
Terminals		
Number of Terminals		9
Storage Capacity		60 million bbls

The Brazilian response to the incidents of oil pollution is usually generated and co-ordinated at the regional level, the parties being the polluter, municipal and state environmental organisms and the Navy, when it is solicited.

Nevertheless, statistics show, as it is known, that the fact of a non occurrence of an accident of big proportions in Brazil just increases the probability of the occurrence in the future, near or distant. With this feeling that the government is involved in the development of the National Contingency Plan that is claimed by the Oil Pollution Response and Co-operation Convention (OPRC) to allow the ratification process.

4.1 The Brazilian National Contingency Plan

The governmental actions, which make possible the adoption of the necessary measures related to the ratification process of the OPRC 90 Convention, have begun with the Brazilian decision of being a State Party of the convention. The actions are being done in parallel with the internal process to permit the acceptance as a National Legislation.

From these actions, the Interministerial Work Group (GTI) was created in 1998 (Rocha, 1999). It has the double task of developing the National Contingency Plan and proposing a national structure to deal with the matter and the respective responsibilities of the organisms involved. The following ministries are part of the GTI:

- Navy
- Mines and Energy
- Finance
- Transports
- Budget and Management
- Communications
- Environment

In addition to the above-cited ministries, PETROBRAS and IBAMA (Brazilian Institute of Environment) participate in the work. The Ministry of the Navy has accepted the task of co-ordination of the GTI works.

A workshop was conducted in Rio de Janeiro from 13 to 17 July 1998 (IMO, 1998*a*), with the purpose of preparing a first draft of the National Contingency Plan. Many specialists in several areas related to the issue attended the event, including representatives from PETROBRAS, EXXON, SHELL, the Canadian Coast Guard and the "Prefectura National Naval" of Uruguay. The event was considered a success. It is important to note that Canada's and Uruguay's co-operation at this phase was valuable, a good example of the spirit of mutual co-operation within the OPRC 90 Convention.

The workshop proved to be useful in the identification of, first the organisations involved and its responsibilities; second the organisations needs to the response to a large scale incident; third the difficulties generated by the huge geographical distances present in the case of a country like Brazil and, finally the needs of material, human and financial resources.

The following main needs were found:

1. An inventory of stock-taking, all over the country, of the existing material resources and capable human resources to participate in a response operation to a major oil pollution incident. The collected information from state and municipal environment organisms and companies in the sector are in the phase of consolidation.
2. A study of the creation of a National Fund destined to obtain and maintain the necessary material resources to response operations; to make the personnel able to participate in the response operations and the guarantee of reimbursement, as soon as possible, of the pollution damages. It will be necessary to create and regulate the operation of this fund with specific legislation.

3. Regulation of the use of chemical dispersants in Brazil. The type of products and judgement for use, even in urgent cases, need to be well defined all over the country. There has been a national regulation developed about this subject, through IBAMA, which should be presented to the National Council of Environment (CONAMA) for approval.
4. A map, in appropriate scale, of the sensitive and critical areas in the Brazilian coastal zone. It is necessary to know the sensitive areas and values to be protected in case of a large oil spill. This matter is one of the priorities of the Ministry of the Environment. It depends on the allocation of specific financial resources. These critical areas comprise the sedimentary basins. These basins (see figure 4.3) have different characteristics concerning their geological age, size, sediment thickness, prospectiveness, degree of exploration, operational peculiarities, thus representing a challenge to any petroleum company.

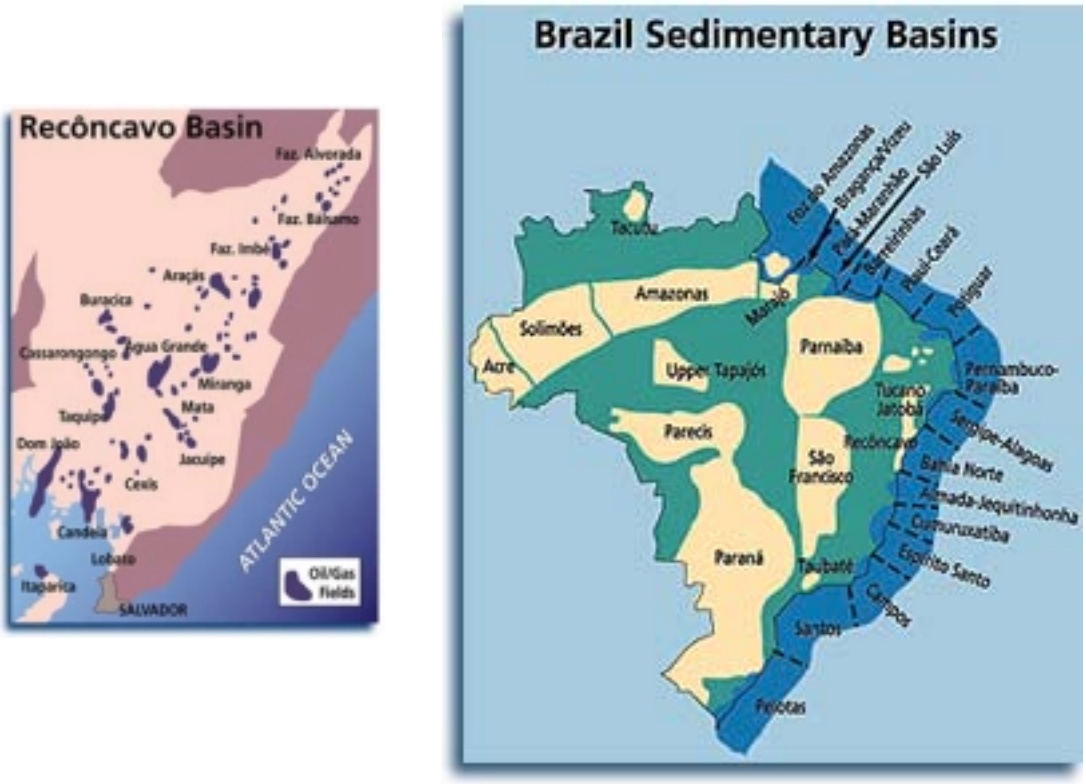

Figure 4.3 Brazilian Sedimentary Basins and the Recôncavo Basin (Source: Ministry of Mines and Energy, 1998)

5. Accelerate the approval, by the Congress, of the Oil Law. At the present moment, it is still a Senate Bill (PLS) n° 37/96. This PLS regulates some devices of the MARPOL 73/78 Convention in Brazil and update the legislation about environmental pollution caused by hydrocarbons, as well as toxic and hazardous substances.
6. Accelerate the process to become a State Party to the 1992 Protocol of the International Convention on Civil Liability for Oil Pollution Damage 1969 (CLC69) and of the International Convention on Establishment of a National Fund for Compensation to Damages by Oil Pollution, 1971 (FUND71). The Brazilian ratification to these conventions is adequate, considering that it makes possible to update the Brazilian situation in relation to the international acts for compensation of damages caused by oil pollution. At the present moment, the country is a State Party only of the CLC69.

As can be noted in the previous paragraphs, there is much work to be done, which, fortunately, has already started. Taking this into account, it is important to mention that each and every initiative of technical co-operation with the Brazilian Government is welcome. The participation of the organised society in this work is also encouraged. There are plans to make the National Contingency Plan through INTERNET available, before the final approval, for suggestions and comments that can lead to a better final result.

4.2 Main Aspects of the Brazilian Contingency Plan

The Brazilian National Contingency Plan has been developed following the IMO guidelines about this subject and the knowledge acquired through the experience of other countries, like Canada and the United States of America. In addition to the understanding that an effective capacity of response to oil spills is

presented in a clear, realistic and practicable contingency plan. Also considering that it shall be tested and improved periodically.

The Contingency Plan is based, mainly, on the following:

- In the principle of "*the polluter pays*", this means that the polluter is the most responsible for the actions of contention, control, recovery of the environment damage and reimbursement of the damages affected by the spill.
- The polluter is responsible for the response actions.
- The response shall be immediate.
- The public interest shall always come first.
- The appropriate spread of information.

Its material components are: the organisational structure to combat the spill, the definition of the responsibility of each part involved, the necessary actions to the mobilisation of the human, material and financial resources and the communication proceedings, which are essential in every plan.

The plan also establishes and details the response phases, which are notice of the incident, its estimate, the mobilisation of resources, the strategy to be followed, the operation itself and the demobilisation.

It is important to emphasise that the time spent on the response, the effort, the success of the operations and the spill consequences are all directly related.

In terms of planning the response operation to an oil spill, there are some key ideas that must not be forgotten and these are considered in the Brazilian Plan, as follows:

- Each spill is different to any other.
- The notice of a spill shall never be delayed to the responsible authority.
- The initial and permanent estimate of the spill is essential to the response operation.
- Aerial surveillance is essential.
- The development of computer models can be very useful.

- The net of response actions will have the strength of the weakest element.
- Resource mobilisation is the activity that takes time.
- It is necessary to have a good national organisational structure.
- The people involved need to have a well-defined function to perform.
- Efficient communications are essential.
- There will always be lessons to learn from each spill: it is necessary learn these currently on-the-job.
- An effective response will be the result of planning, drilling and exercising.
- ***The safety of life and the environment will always be in first place.***

Therefore, the Brazilian Contingency Plan, which comprehends geographically the Brazilian jurisdictional waters, has as its main objectives the following:

1. The national co-ordination and the operational organisation of the response are credited to and the responsibility of the organisations involved.
2. The judgement of putting the Plan into action.
3. The basic policy to the regional and local plans.
4. The provision and utilisation of the material, human and financial resources.
5. The judgement of chemical dispersants utilisation.
6. The final location of the residues coming from the response operation.
7. A reliable communication system and the maintenance of suitable information in time to the public opinion.
8. An information system that stores and makes available the information and knowledge about incidents and response operations.
9. The programs of validity, training and improvement of the National Contingency Plan.

In addition to developing and implementing a National Contingency Plan, there are several requirements to ratify and implement the OPRC Convention. As could be

verified in this chapter, Brazil is still at the beginning of this process. At the present moment, Brazil is making arrangements to comply with the requirements for the implementation, which will be discussed in-depth in the next chapter.

4.3 Ratification by Brazil of the OPRC Convention

According to the OPRC/Circ.32, 29 July 1998, the Secretary-General of the International Maritime Organization refered to the International Convention on Oil Pollution Preparedness, Response and Co-operation, 1990, and stated that, in accordance with article 15, the ratification by the Federative Republic of Brazil was effected by the deposit of an instrument on 21 July 1998.

The Convention entered into force in Brazil on 21 October 1998, in accordance with the provisions of article 16.

On 29 July 1998, there were forty Contracting States to the Convention.

5. THE BRAZILIAN OIL SPILL RESPONSE SYSTEM

To make possible the rational implementation of the OPRC Convention in Brazil still much work has to be done. Fortunately, it has started as presented in the previous chapter. However, it is just the beginning of a complex process to achieve the requirements of IMO in relation to the implementation of the convention.

During the development of the present dissertation the opportunity to working closely with different institutions and organisations in charge of the further development of the implementation process has been found. Within this framework, and for more than six months, it has been possible to establish the initial procedures in which the complete process of implementation should be based. The following requirements then are the essential basis for the complete success of the project.

1. Three-Tiered Approach
2. Contingency Plans
3. Spill Notification and Reporting
4. Clean-Up Responsibility
5. National Oil Spill Control Committee (NOSCC)
6. The Area Co-ordinator
7. The On-Scene Commander (OSC)
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9. Clean-Up Strategies
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11. Training
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13. Contracts and Memoranda of Understanding (MOU)
14. Financial Arrangements and Funding
15. Information Management
16. International Response Arrangements
17. Strategy Review

Each one of the above requirements will be described and discussed in detail in the following sections.

5.1 Three-Tiered Approach

In line with established international practice, Brazil should adopt a three-tiered approach to all aspects of oil spill preparation and response.

Local/Industry (Tier 1), Area/Regional Councils (Tier 2) and the Ministry of Environment directing the National (Tier 3) response efforts, all have clear roles and responsibilities.

- **Tier 1** is site-specific and includes most shore-side industry with oil transfer sites, offshore installations and all vessels required to have a shipboard oil pollution emergency plan. It caters for small spill and spill occurs within port limits, oil terminals and depots as well as oil platforms. All Tier 1 sites and vessels are expected to be able to provide a clearly identifiable first response to pollution incidents for which they are responsible. Local authorities or local oil companies will conduct the clean up.
- **Tier 2** is provided by Regional Councils and unitary authorities acting as Regional Councils. These agencies are responsible for providing an operational response to

oil spill incidents within their regions out to the 12 nautical mile limit of the Territorial Sea.

Regional Councils will respond to oil spills, which exceed the clean-up capability of Tier 1. They will also respond to those spills for which no responsible party can be identified. The Ministry of Environment should offer adequate resources to Regional Councils to ensure that sufficient equipment, personnel training courses and opportunities to exercise their expertise are available for them to competently undertake this role.

Regional Councils should also be responsible for ensuring that industries with oil transfer sites within their region produce appropriate oil spill contingency plans. The Area Operation Committee will be formed to co-ordinate this Regional Oil Spill Combat Operation and it is chaired by an officer appointed by the related Regional Authority.

- **Tier 3** is the responsibility of the Ministry of Environment. The Ministry of Environment manages the National Oil Spill Contingency Plan. When a spill occurs within a region, which is beyond the resources of the region, or if the cost to the Regional Council of the response is expected to be huge, the Ministry of Environment will assume responsibility for managing the spill response. The Ministry of Environment will also manage the response to any oil spill within the Exclusive Economic Zone (EEZ), but outside Regional Council boundaries (the Territorial Sea). Spills, which occur outside the EEZ and over the Brazilian Continental Shelf, are also the responsibility of the Ministry of Environment. It is activated also when the spill spreads into waters of neighbouring countries, in the case of existence of an international (or bilateral) contingency plan.

Brazil should purchase and maintain oil spill response equipment, which will allow it to contain and clean up a spill equivalent to approximately 25,000 tonnes of persistent oil.

If a large oil spill occurs anywhere within Brazil's area of responsibility, and it is beyond Brazil's own resources to contain it and clean it up, the Ministry of Environment

will seek and co-ordinate an international response. An adequate National Oil Spill Contingency Plan should be used to plan and carry out a response involving international resources. The National Oil Spill Control Committee (NOSCC) will make co-ordination for foreign assistance, in accordance with the respective procedures of the Regional Oil Spill Contingency arrangements.

The agencies responsible for all three tiers must produce and maintain both oil spill contingency plans and operational response capabilities.

5.2 Contingency Plans

Brazil must use oil spill contingency plans to prepare for oil spill incidents. The three response tiers are required to produce contingency plans to the standards provided within the marine protection rules and any guidelines issued by the Ministry of Environment. Each regional and site plan must be consistent with this strategy and the National Oil Spill Contingency Plan.

The Brazilian National Contingency Plan has been deeply discussed in the previous chapter, and for that reason it is nor considered necessary to cover the topic here.

5.3 Spill Notification and Reporting

5.3.1 Initial Notification

Where there is an actual or probable oil spill into the marine environment, it is the responsibility of the polluter to notify either the Ministry of Environment, Ministry of Science and Technology or through the Marine Department's offices nearest to the incident site, by the quickest means possible. The Department of Environment and all Regional Councils should provide 24-hour contact telephone numbers for marine oil pollution incidents. It is important to remember that although reporting an oil spill

incident in no way implies an admission of guilt, failure to report an incident is clearly an offence.

5.3.2 Format

IMO standard international oil spill notification formats and procedures for shipping, other maritime industries and commercial aviation, should be followed whenever possible.

Regional Councils must also notify the Ministry of Environment whenever they respond to a spill. The Ministry of Environment should provide Regional Councils with an appropriate format for this notification, based on international standards. However, sufficient flexibility should be maintained for both the regional on-scene commander (ROSC) and the Ministry of Environment to meet their respective requirements.

Preliminary report should have the following information as the minimal:

- Location of incident
- Type and size of spills
- Data and time of the incident
- Other relevant information.

5.4 Clean-Up Responsibility

Where able, the industry site responsible for an oil spill should begin the spill control and clean-up operations. If a Tier 1 response is ineffective or unavailable, the Regional Council (Tier 2) will take responsibility for clean-up operations. If the response is beyond Regional Council resources, the Ministry of Environment (Tier 3) should take responsibility for the clean up.

5.4.1 Tier 1: Local/Industry

In the case of a vessel spill, the ship's master is responsible for ensuring that containment and clean-up operations begin immediately. In the case of a shore-side or offshore installation spill, the company, plant or site manager is responsible for ensuring these operations are commenced without delay.

After notifying the Regional Council (or the person designated by the contingency plan) of the spill, immediate steps must be taken by the person in charge to control the spill and commence treatment, clean up and disposal procedures, in accordance with their approved contingency plan.

If the industry person in charge seeks support, or if the Regional Council considers that the response needed is beyond the capability of the site to provide, the regional on-scene commander (ROSC) will take charge and control of the response. The response then progresses to Tier 2.

If the spill is outside the Territorial Sea, for example from an offshore installation or ship at sea, control of the response passes directly from the Tier 1 person in charge to a Tier 3 national on-scene commander (NOSC).

5.4.2 Tier 2: Area/Regional Councils

Where a polluter is unable to be identified, or when the Local/Industry capability cannot control the spill, the ROSC will assume responsibility for the clean-up operation directly. When taking over responsibility for a clean up from an industry on-scene commander (OSC), the ROSC should be briefed fully by that person about the response up to that point. The ROSC has a responsibility to notify the Ministry of Environment as soon as it becomes responsible for a marine oil spill response operation.

If the spill is large or likely to involve significant expenditure to control and clean up, the Ministry of Environment may appoint a representative to support the

ROSC. Responsibility for the clean-up of any large spill, where the overall cost to the Regional Council is likely to be huge, will progress from regional to national OSC as soon as practical.

If the spill is beyond the capability or resources at the disposal of the ROSC, the Ministry of Environment should be notified, and responsibility for response is escalated to Tier 3.

The ROSC may seek the support of the Ministry of Environment at any time, and a NOSC may determine at any time that progression from regional response to national response is appropriate. In doing so, the NOSC assumes control of and responsibility for the oil spill response operations.

5.4.3 Tier 3: Ministry of Environment

If a spill response within a region becomes too large or too costly, a NOSC, appointed by the Minister of Environment, should assume control of the response.

The NOSC should also assume control if the spill is beyond the Territorial Sea. The response progression, where appropriate, would pass directly from the vessel or installation to the NOSC.

If the spill is over 25,000 tonnes or otherwise beyond Brazil's existing resources to control, international assistance in the framework of OPRC Convention could be sought. In this case, the NOSC remains responsible for the clean-up operation.

5.5 National Oil Spill Control Committee (NOSCC)

The functions of this kind of committee should be to co-ordinate activities of various agencies involved in the Oil Spill Combat Operation as well as to accelerate the necessary actions. The Committee is given an overall responsibility and acts as an advisor to any area co-ordinators in carrying out their duties. Through the Ministry of

Foreign Affair's representative, the Committee will co-ordinate the communication with the other countries if assistance is necessary.

5.6 The Area Co-ordinator

The responsibility of Area Co-ordinator is dependent on the location of the spill incident.

Area Co-ordinator is responsible for:

- Carrying out the prompt investigation of an oil spill incident and to forward the investigation report to the Minister of Environment.
- Taking early precautionary measures to control the spills by mobilising the existing equipment and personnel. For Tier 1 oil spill, Area Co-ordinator should activate and monitor the Local Response Plan.
- Receiving and forwarding oil samples directly to the Chemistry Department for analysis.
- Obtaining the Bond Agreement for the Minister of Environment from the polluter to cover the cost of clean-up as well as compensation due to the spill. In the event of vessel discharges, the Area Co-ordinator shall have the right to detain the owner or the local agent of the vessel until a Bond Agreement is issued to the Minister of Environment.
- Co-ordinating all forms of assistance needed by the On-Scene Commander (OSC) and Shore Clean-up Co-ordinator (SCC) for any major oil spills.
- Obtaining a daily activity report from OSC and SCC so as to facilitate the processing of compensation and cleaning cost claims.
- The overall safety of the operation.

5.7 The On-Scene Commander (OSC)

Any Commanding Officer of Government Vessels who is first to arrive at the spill location can assume the role of the On-Scene Commander (OSC). For incidents within the area covered by any available Contingency Plan, the appointment of an OSC should be subject to the procedure of the respective plan.

Nevertheless, the Area Operation Committee (AOC) or National Oil Spill Control Committee (NOSCC) is also authorised to reappoint an OSC, if necessary.

Any appropriate marine protection rules could provide for suitably qualified people to be appointed either as a regional on-scene commander or a national on-scene commander. Each NOSC is appointed by the NOSCC, while each ROSC is appointed by the AOC.

All OSCs and their deputies will be provided with a warrant card as evidence of their identity and the statutory authority under which they are acting.

The specific roles of OSC are as follows:

- Responsibility for the operational activity of the oil spill clean-up and co-ordination tasks with the Area Co-ordinator.
- Responsibility for relaying of information and for receiving command from Operational Control Centre for further action.
- To prepare a report on the daily activity of the operation and to submit the report to the Area Co-ordinator to facilitate the cost of cleaning-up and compensation claims.
- Responsibility for safety matters.

For any oil spill the OSC should:

- Minimise, and where possible, prevent further pollution from the oil spill.
- Take whatever measures necessary to contain and recover, solidify, disperse or clean up the oil spill in accordance with the relevant contingency plan.

It is the responsibility of the OSC to take such actions as necessary to minimise the environmental impact of the spill, including, but not limited to, dispersing the oil into the water. In addition to cleaning up oiled environments, rescuing and cleaning oiled wildlife, and disposing of any waste in an environmentally appropriate manner.

The OSC should, where practical, take the following general course of action:

- take any necessary steps, including sampling, to identify the source of the spill
- prevent any imminent spill from occurring
- stop the spill
- prevent the spread of pollution
- mitigate any harmful effects of the spill
- protect threatened resources, areas and species
- clean up and remove the pollution
- dispose of the waste appropriately.

In order to combat oil spill pollution successfully, OSCs are provided with a wide range of powers.

When an OSC, or any person working with an OSC, has acted in good faith in the performance of their duties in responding to an oil spill, they are protected from liability for any loss or damage to property caused by their actions.

5.8 The Shore Clean-up Co-ordinator (SCC)

The Shore Clean-up Co-ordinator will be appointed if the spill has potential to hit beaches and clean-up operation is deemed necessary. His appointment shall be in accordance with the procedures of the existing contingency plans or shall be appointed by NOSCC.

Roles of Shore Clean-up Co-ordinator are as follows:

- To manage shore clean-up activities and to co-ordinate with the Area Co-ordinator.
- To provide information and to receive command from Operational Control Centre for further actions.
- To prepare daily reports on the activity of the operation and to forward to Area Co-ordinator for cleaning cost and compensation claims processing.
- Responsibility for safety affairs.

5.9 Clean-Up Strategies

All OSCs are allowed to take whatever action is appropriate to clean up and/or mitigate the effects of an oil spill. In general these actions fall into three main areas.

5.9.1 Monitor the pollution

Under certain circumstances, it may be inappropriate to contain or clean up a spill. Depending on the spill location, and type and volume of oil, the best and most cost-effective response may be to monitor its progress and leave the oil to weather and disperse naturally.

5.9.2 At sea response

Dealing with the oil while it is still afloat will always be preferred to allowing the oil to strand onshore. Operations at sea should give priority to preventing oil reaching sensitive coastal environments.

The major options at sea are containment and recovery using booms and skimmers, solidification by BOI Treatment, use of chemical dispersant, use of absorbent, and in-situ burning.

Only chemical dispersants approved by the Brazilian Ministry of Environment are allowed for application in all Brazilian marine waters. The application of these dispersants has to comply with the ' Brazilian Guideline on Application of Dispersant' (Moreira, 1999). They can only be applied in certain pre-approved areas.

5.9.3 Shoreline response

Once oil has stranded on the shore, the environmental impact and cost of cleaning are often much greater than if the oil were dealt with at sea. Some options available to the SCC are:

- Pre-cleaning - areas are cleaned of debris in advance to make access easier and to lessen the quantities of oily waste.
- Mechanical and/or labour-intensive shoreline clean-up.
- Leaving the clean-up to natural processes.
- Bioremediation (using living organisms to break down the oily waste).

Before shoreline cleaning commences, the SCC needs to ensure that there is agreement about which shoreline areas are affected and need to be cleaned, the order in which this will occur, and what methods of cleaning will be employed. It is important to note that the shoreline cleaning must not start while there is still a large quantity of oil at sea, because a new shoreline pollution will occur, requiring a second clean up operation. For each length of shoreline there should also be an agreed set of environmental standards, based on that location's sensitivity to both the oil pollution and cleaning methods, which will determine when cleaning operations begin and end at that location.

5.9.4 Waste disposal

The person or agency responsible for spilling the oil, and hence for any costs associated with clean-up operations, may not always be the legal owner of the oil. In

whatever form the oily waste is finally recovered, its ownership remains with the original owner. The OSC may, if practical, consult the original owner of the oil, or their agent, to determine their preferred course of action. However, the ultimate responsibility for determining and carrying out the disposal or recovery of all oily waste is solely the responsibility of the OSC.

All waste should be disposed of in an environmentally sensitive manner. National rules and regulations governing scheduled waste disposal should be followed.

5.10 Oil Spill Response Equipment

It is planned that Brazil will be able to respond to an oil spill of approximately 25,000 tonnes of persistent oil. The national inventory of equipment must be of sufficient size and variety for the NOSC to have a reasonable expectation that a spill of this size can be contained and cleaned up within a reasonable time following the spill.

The Ministry of Environment will allocate to each Regional Council the basic equipment needed to clean up spills identified as likely to occur within their regional boundaries, and in particular within their ports. Therefore, equipment allocation needs to reflect both regional and national needs.

An overall plan for new equipment purchase and replacement should be developed and maintained by the Ministry of Environment, in consultation with NOSCC and the national and regional OSCs.

All equipment remains the property of the Ministry of Environment. It may be allocated to regions, but remains a part of the overall national oil spill response equipment inventory. The equipment must always be available for emergency redeployment to other regions in the event of a spill.

The Ministry of Environment should maintain a full database of all national oil spill response equipment, including the stocks of all the clean-up products. All

equipment in the national inventory will be maintained to timetables and standards set out in maintenance plans developed by the Ministry of Environment.

Where oil spill response equipment is deployed to Regional Councils, a contractual agreement between the Ministry of Environment and the Regional Council should be established in advance. This will outline the agreed standards for maintenance, management, deployment, storage and use of that equipment.

Some of the national inventory of oil spill response equipment, including that allocated to regions, is available for limited hire to outside parties with the approval of the Minister of Environment. However, the equipment must still be available for emergency deployment in the event of a major oil spill.

5.11 Training

The Ministry of Environment is responsible for developing and co-ordinating the training necessary to implement a successful regional or national oil spill response. Industry is responsible for providing appropriate training for their Tier 1 response personnel.

The Ministry of Environment shall provide courses in two major areas of oil spill response: oil spill response management and oil spill equipment operation. Future courses may be developed which focus on the particular skills needed by OSCs, SCCs, personnel working with the control of oil spills, and administration and support staff.

The Ministry of Environment shall implement a policy whereby people integral to a regional or national oil spill response team should attend formal Ministry of Environment provided or approved training courses and have their skills reassessed every four years. Unless approved in training courses, these people will not be permitted to work in any key positions in any regional or national response team. This policy seeks to ensure that all people integral to an oil spill response are able to understand and employ any technological advances and apply the relevant occupational

safety and health standards to their area of operation. Where an OSC is able to show, through staff attendance at incidents, exercises or other training, that key staff in the regional response team are maintaining competency in their respective oil spill response roles, then credit can be given for training validation.

The Ministry of Environment's training courses shall also be available to other people at cost.

5.12 Exercises

It is essential to conduct exercises to assess the capability and robustness of all planning, management and operational response systems. All components of the oil spill response system in Brazil must be periodically and rigorously exercised.

National and regional exercise programmes should be required from the Ministry of Environment and regions respectively. These should become part of the national and regional oil spill contingency plans.

The IMO/IPIECA guide defines four types of exercise, as follow:

- Notification Exercise (the most simple), which tests alert and call-out procedures.
- Tabletop Exercise, which tests contingency plans and response team interactions.
- Equipment Deployment Exercise, which tests equipment, site and scenario familiarity.
- Incident Management Exercise (the most complex), which tests both the planning and operational aspects of a response system, often involving third parties.

As part of the exercising, testing and improvement of all parts of the oil spill response system in Brazil, industry, Regional Councils and the Ministry of Environment must plan and undertake exercises on a regular basis. The Ministry of Environment should provide a clearing-house service for co-ordinating national, regional and industry

exercises, so as to maximise cost-effectiveness, minimise duplication of effort, and avoid disruption to normal work processes.

Each Regional Council must plan and undertake one major regional incident management exercise every four years, in rotation around the country. The Ministry of Environment must be involved in both the planning and operation of each exercise. The costs associated with holding regional exercises will be included within each Regional Council approved annual oil pollution budget.

The Ministry of Environment must also plan to undertake at least one major national incident management exercise every three years. Industry (shipping and oil) and Regional Councils must be invited to be involved in the planning and operation of these national exercises. International assistance may also be sought from national oil spill response agencies and spill response organisations and consultants.

Regions may also conduct other smaller or more specific exercises by agreement with the Ministry of Environment, provided these are consistent with their regional oil spill contingency plans.

The Ministry of Environment may reduce both regional and national exercise frequency in the event of significant spills occurring, or where other exercises driven by external agencies occur.

5.13 Contracts and Memoranda of Understanding (MOU)

The Ministry of Environment, in line with most other national oil spill response agencies, cannot provide most of the services required to combat a catastrophic spill. This will almost always require the combined efforts of a number of agencies. The Ministry of Environment's role is to provide the core expertise related to oil spill response and control, and to co-ordinate the efforts and expertise found in public agencies or private sector companies. The wide and varied expertise of the exploration, production and transportation sectors of the oil industry will be invaluable.

The most suitable means to formally recognise each agency's role and responsibilities is either by a memorandum of understanding (MOU) or commercial contract. A memorandum is the more effective tool, where two agencies each have a role in spill response and need to define the way they should co-operate. A contract is most useful when the agency has a special skill or expertise, which the Ministry of Environment (or a region) wants to employ in oil spill response.

Services for which contracts or MOU will be needed include:

- analysis and interpretation of samples
- legal services for prosecutions
- administrative services
- specialist expertise in oiled wildlife training and response
- transport logistics, aerial surveillance and communications
- rapid deployment force of trained equipment operators
- crowd management and site security
- public and media relations, and information management.

International assistance agreements will also be necessary.

5.14 Financial Arrangements and Funding

5.14.1 The National Fund

To create a National Fund is necessary for preventing and combating a spillage, discharge or dumping of oil. The National Fund shall consist of several sources of contribution and one of them is all donations and contributions received from within or outside Brazil.

Those involved in the exploration, extraction, refining, production, bulk movement, distribution or storage, of oil, shall contribute to this fund. The fund provides money for Brazil's preparations for oil spill response through the Ministry of Environment. It also should pay the costs of responding to spills where the polluter is unidentified.

5.14.2 The Polluter Pays Principle

Wherever possible the full cost of any spill response and clean-up operation should be sought from the polluter. All efforts should be made at both regional and national levels to ensure that costs are recovered. Measures employed will include: the early detection of spills; the collection of evidence needed for the successful prosecution of offenders; and the development and maintenance of information systems to ensure that all costs are recorded and accounted for.

5.14.3 Letter of Guarantee

Having due regard to the extent of pollution and the estimate of the likely cost of clean-up operations, the Area Co-ordinator concerned should obtain a Letter of Guarantee from the owner, agent or operator of the source of spill or where not practicable, cash in lieu thereof. However, this is difficult to be implemented because the owner will always defend his rights through his insurance and the CLC and FUND conventions. The Letter of Guarantee shall be for such sum, which, in the opinion of the Area Co-ordinator, would be adequate to meet the cost of, clean up and spill control.

The Letter of Guarantee should be made out in the name of the Minister of Environment, Brazil and dispatched by registered post as soon as possible. The validity period of the letter of guarantee shall no be less than one year.

5.14.4 Financial Arrangements for Regional Councils

The Ministry of Environment provides for Regional Council costs associated with preparation for oil spill response to be met from the National Fund.

Every year each Regional Council will agree with the Ministry of Environment the sum to be included in its Annual Plan to meet costs for preparation for marine oil pollution response for the coming year.

Each annual budget should include reference to services and costs associated with:

- administering the regional oil spill contingency plan
- training personnel
- storing, maintaining and testing equipment
- exercises

The Regional Councils (and the Ministry of Environment) are also provided with the authority to recover all of their legitimate oil spill response costs from either the polluter or the National Fund, if necessary. In the event of a spill where an OSC is required to respond, one of three financial alternatives must apply:

- In unsourced spills, if no immediately obvious polluter is discovered, the Ministry of Environment or Regional Council can legitimately claim reimbursement of costs from the National Fund (subject to acting in good faith).
- When a polluter is identified, they may choose to offer financial assistance to the clean-up operation, so that all reasonable costs are met at the time of clean-up. This may be done "without prejudice" to any admission of legal responsibility.
- The suspected polluter may choose not to provide financial assistance to the spill response, and all these costs will be borne by the Regional Council (or Ministry of Environment) until they can be recovered through legal processes from either the polluter or the National Fund.

In all cases, the OSC must keep accurate records of the incident and a full financial account of all oil spill response costs.

In carrying out the approval, audit and inspection of Tier 1 sites and associated contingency plans within their regions, Regional Councils should be provided with the authority to recover these costs either directly from the industry concerned or from the National Fund.

5.15 Information Management

Well-designed and maintained information management systems will make it easier to identify ways to mitigate the damage to marine environments from oil pollution.

The Ministry of Environment should establish and maintain a national oil spill database. All oil spill incidents (or suspected incidents) will be recorded on this database using information provided by Regional Councils and other reporting agencies. At the conclusion of clean-up operations for minor spills, and as soon as possible during major spills, the regional or national OSC must send the Ministry t of Environment a full record of the spill and response. The Ministry of Environment should provide Regional Councils with an appropriate oil spill reporting form to be used for recording this information.

The Ministry of Environment should also maintain a response resource database as part of the National Oil Spill Contingency Plan. This will include all oil spill response equipment held by the Ministry of Environment and other agencies as appropriate, and all trained oil spill responders.

The Ministry of Environment should also maintain a library and database of oil spill management and response technologies, which will be available to industry,

Regional Councils and other agencies associated with oil spill response planning and preparation.

5.16 International Response Arrangements

A catastrophic spill in Brazilian waters will require international assistance and co-operation.

Brazil will enter into mutual aid agreements with other countries and agencies as it sees appropriate, as a good example the "Acuerdo de Viña del Mar".

Request for foreign assistance shall be made via the National Oil Spill Control Committee (NOSCC). However, the Area Operation Committee shall inform the National Oil Spill Control Centre for the purpose of co-ordination. Application for equipment assistance involving transboundary movement should be forwarded to the Ministry of Foreign Affairs through its respective representatives in the committees concerned to accelerate the process of entry. Meanwhile, application for foreign expertise should be channelled to the Immigration Department. In this case, sufficient details of equipment including type of equipment, serial number, model number, including the expertise background should be enclosed.

Brazil will assist with response to overseas incidents in accordance with any mutual aid agreements or international conventions to which it is a party. The National Oil Spill Control Committee should consider all requests for assistance on a case-by-case basis.

5.17 Strategy Review

The Ministry of Environment shall formally review this strategy at least every three years. In between each formal review it may be necessary to issue updates should circumstances change.

6. CONCLUSION

The adoption of the OPRC Convention is a very important action to be taken for improving the possibilities of mutual co-operation and assistance between countries and regions, even though, the OPRC Convention has been known as a convention for developing countries. However, in large oil spill accidents, the experience has demonstrated that even the most industrialised countries have trouble in dealing with pollution. The State Members of the OPRC Convention are expecting that the mutual assistance provided by the convention can help the whole marine environment, not simply the developing or the industrialised countries, with the exchange of experiences among them.

There are some requirements for Contracting States of the convention, such as the existence of national contingency plans, which are difficult for developing countries to comply with, because, usually, they do not have the necessary domestic structure. These requirements generate trouble for States that present an interest in becoming party to the convention and can also represent delays in the complete process of ratification. This was one of the reasons that Brazil could ratify the OPRC in July 1998.

Industrialised countries have also encountered some difficulty in complying with these requirements, since to keep equipment and expertise for oil pollution preparedness and response, which may be available to other States in case of major incidents, is very expensive for these countries.

To fulfill the necessary requirements for the implementation of the OPRC Convention in Brazil it is necessary for there to be a well-structured Maritime

Administration. The ministries of Navy, Transport, Communications and Environment represent an important role in this matter. The Minister of the Navy has given the major contribution in solving the problems related to maritime affairs and is amply incorporated in this process. However, other ministries, such as the Ministry of Transport and Communications, do not give the necessary priority to maritime affairs. On the contrary, it is listed as one of the last items on its lists. This makes a quick solution to the problems, that a process of ratification requires, difficult.

The maritime administration legal framework needs to adjust its operation to accommodate the continuous changes that are present in the shipping industry, both locally and internationally.

It is important to take into account that even with the problems present in the Brazilian Maritime Administration, it has a good position within the Latin American countries. Some characteristics, like the Fund for the Development of Maritime Professional Education (FDEPM), can be considered as a reason for its quite good performance.

The ratification and implementation of the OPRC Convention in Brazil is essential, considering that the Brazilian coasts are one of the longest in the world, in addition to the extensive inland waters that help the promotion of the inland and maritime commerce. About 96% of its exterior commerce is done through the sea, Furthermore, the biggest part of the Brazilian production of petroleum is exploited on the sea, and the country still depends on the intense importation of this product. However, at the present moment, the statistics of oil spills in Brazil are not catastrophic as it might be expected, which can not properly be considered a reason of tranquillity. Nevertheless, the fact of a non-occurrence of an accident of big proportions in Brazil just increases the probability of the occurrence in the future.

Considering the importance of the above-discussed matter, the Brazilian Government has been involved in the development of the National Contingency Plan that is claimed by the Oil Pollution Response and Co-operation Convention (OPRC),

1990, to allow the ratification process. However, much work is still needed to be done and it is just the beginning of a complex process to achieve the requirements of IMO in relation to the implementation of the convention.

During the development of this dissertation the collaboration of many different institutions and organisations, which are in charge of the further development of the OPRC implementation process, were primordial in complete the last chapter. This chapter presents the establishment of the initial procedures in which the complete process of a rational implementation of the convention should be based. The essential bases for the complete success of this project were presented in the topics of chapter five. They are recommended by the author of this work to be followed, which can represent a model of implementation that can be used by other countries interested in developing the same process.

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APPENDIX 1
STATUS OF IMO CONVENTIONS IN BRAZIL

The Federative Republic of Brazil is one of the earliest states' members of the International Maritime Organisation. According to the *Status of Multilateral Conventions and Instruments in Respect of Which The International Maritime Organization or Its Secretary-General Performs Depositary or Other Functions*, at the present time, Brazil has ratified or accepted or approved or accessed the following IMO Conventions:

- IMO Convention 48
- IMO amendments 91
- IMO amendments 93
- SOLAS Convention 74
- SOLAS Protocol 78
- LOAD LINES Convention 66
- TONNAGE Convention 69
- COLREG Convention 72
- CSC Convention 72
- STCW Convention 78
- SAR Convention 79
- INMARSAT Convention 76
- INMARSAT OA 76

- INMARSAT amendments 94
- FACILITATION Convention 65
- MARPOL 73/78 (Annex I/II)
- MARPOL 73/78 (Annex III)
- MARPOL 73/78 (Annex IV)
- MARPOL 73/78 (Annex V)
- London Convention 72
- CLC Convention 69
- HNS Convention 96

The International Convention on Oil Pollution Preparedness, Response and Co-operation (OPRC), 1990 that is the most important subject of this work was signed by Brazil “ad referendum” of the Senate and House of the Brazilian Congress.