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WORLD MARITIME UNIVERSITY
Malmö, Sweden

**EXCLUSIVE ECONOMIC
ZONE MANAGEMENT**

AND

SUSTAINABLE DEVELOPMENT

By

SADARUDDIN AHMED

Bangladesh

A dissertation submitted to the World Maritime University in partial fulfilment of the requirements for the award of the degree of

MASTER OF SCIENCE

in

GENERAL MARITIME ADMINISTRATION

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

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

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DEDICATED TO MY BELOVED WIFE DANNY

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A b s t r a c t

Title of dissertation: Exclusive Economic Zone Management
and Sustainable Development

Degree: M.Sc.

The dissertation is a study of policy for Ocean Management in general and Exclusive Economic Zone Management in particular with special reference to Sustainable development principles and objectives.

The motivation behind the endeavour is to examine the crucial role of the Government to manage our common inheritance.

The dissertation examines whether there exists any international mandate for Ocean Management and Sustainable Development.

Having the mandates for Ocean Management and Sustainable Development it explores the theoretical aspects of integrated Ocean Management Policy.

Then it examines the practical aspects of Ocean Management with special reference to Sustainable Development.

Finally the dissertation recommends certain policy actions to be pursued internationally and nationally to materialize the commitment to sustainable development principles.

I N T R O D U C T I O N

The Earth is one and its forests and waters are the Common inheritance of Mankind. John Stuart Mill in his principles of political economy referred to the importance of the government responsibility to manage this Common Inheritance.

Ocean is our Common Herritage. Like any other natural resources the ocean resources are also limited. Therefore, we need to manage the ocean judiciously.

For ocean management the following features/trends should be kept in mind:

According to recent United Nations prediction that by 2025 the world population will be more than 8 billion people, with more than 60% living on the coasts. The World Bank holds that the World Population would be 12-14 billion people.

And this sort of alarming growth of World population will result in severe problems world-wide like pollution of coastal area, destruction of wetlands, and of critical havitat. There comes the concern for Ocean Management in general and Exclusive Economic Zone Management in particular.

On the other hand the concept of Sustainable Development gained international publicity and prominence with the publication of "Our Common Future". And in the Earth Summit in 1992 the nations committed to pursue the sustainable development principle and objectives. Sustainable development concept is very "global in ambit", and is based on two essential ingredients namely interdependence (between the North and the South) and integrated approach.

The chapter 17, Agenda 21 of the Earth Summit was devoted to Integrated Ocean Management and sustainable development. Therefore, one may have the obvious interest to see how the states manage their ocean and fulfil their commitment to sustainable development.

C H A P T E R I

INTERNATIONAL MANDATES AND RECOMMENDATIONS FOR OCEAN MANAGEMENT AND SUSTAINABLE DEVELOPMENT:

To start with we should examine whether there exists any mandate for ocean management and sustainable development. For this purpose 1972 Conference on Human Environment, United Nations Convention on Law of the Sea III, The report of the World Commission on Environment and development and the United Nations Conference On Environment and Development are discussed here.

1.1. UNITED NATIONS CONFERENCE ON HUMAN ENVIRONMENT:

Apart from the demand for new international economic order (NIEO) the demand for new international environmental order of the oceans (NIEOO)¹ gained impetus from the decision of the UN general assembly in 1970 to convene UNCLOS III, which resulted in the UN conference on the human environment (UNCHE) in 1972. Accordingly the conference was held in Stockholm from 5th to 16th June 1972 and was attended by 113 nations.

A declaration adopted by the conference on the human environment envisaged:

1) Man is both creature and moulder of his environment, which gives him physical sustenance and affords him an opportunity for intellectual, moral, social and spritual growth. In the long and tortuous evolution of the human race on this planet a stage has been reached when, through the rapid acceleration of science and technology, man has acquired the power to transform his environment in countless ways and on an unprecedented scale. Both aspects of man's environment, the natural and the man-made, are essential to his well-being and to the enjoyment of basic life itself.

6) The conference calls upon the governments and the peoples to exert common efforts for the preservation and improvement of the human environment for the benefit of all the people and their prosperity.''

The declaration of 26 principles on the Human Environment included several principles relevant to ocean uses. The UNCHE focused on the importance of preserving the human environment and identifying the aspects that could best be solved by international cooperation. Despite the limited aims of UNCHE of promoting coordination (not action), its declaration adopted a pragmatic approach to preservation of the ocean environment. A number of its principles (2, 3, 4, 5) relate to resource management which would include sea's living and non living resources. The principles are as follows:

2) The natural resources of the earth, including the air, water, land, flora and fauna and especially, representative samples of natural ecosystem, were to be safeguarded for the benefit of present and future generations through careful planning or management, as appropriate.²

3) The capacity of the earth to produce vital renewable resources was to be maintained and, wherever practicable, restored or improved.

4) Man had a special responsibility to safeguard and wisely manage the heritage of wildlife and its habitat which were now gravely imperiled by a combination of adverse factors. Nature conservation, including wildlife, was therefore to receive importance in planning for economic development.

5) The non renewable resources of the earth were to be employed in such way as to guard against the danger of their future exhaustion and to ensure that benefits from such employment were shared by all mankind.

Principles 6 & 7 concern control of marine pollution:

(6) The discharge of toxic substances and other substances and the release of heat, in such quantities or concentrations as to exceed the capacity of the environment to render them harmless, had to be halted in order to ensure that serious or irreversible damage was not inflicted upon ecosystems. The just struggle of the peoples of all countries against pollution should be supported.

(7) States were to take all possible steps to prevent pollution of the seas by substances that were liable to create hazards to human health, to living resources and marine life, to damage amenities or to interfere with other legitimate uses of the sea.

Principle 21 gives the states sovereign right to exploit their own resources within their jurisdiction and control and principle 22 proposes that states to cooperate in developing international law relating liabilities and compensations for pollution:

(21) States had, in accordance with the charter of the United Nations and the principles of international law, the sovereign right to exploit their own resources pursuant to their own environmental policies, and the responsibility to ensure that activities within their jurisdiction or control did not cause damage to the environment of other states or of areas beyond the limits of national jurisdiction.

(22) States were to cooperate to develop further the international law regarding liability and compensation for the victims of pollution and other environmental damage caused by activities within the jurisdiction or control of such states to areas beyond their jurisdiction.

Principles 8 to 17 lay down strategies for further development and require rational planning, but all the principles are expressed in very general terms with explicit requirements for action or indication of ways to

balance/match the requirements of environmental protection and with those for development. UNCHE, however adopted an action plan made up of 109 recommendations, a number of which relate to the ocean including one on the urgent need to conclude a global convention on ocean dumping and another calling for 10 year moratorium on whaling.

UNCHE also established the United Nations Environmental Programme(UNEP), which immediately identified the oceans as one of the priority areas in its programme."

However, with the influence of growing environmental awareness and the catalytic function of the Stockholm conference, more environmental conventions were concluded in the early seventies.³

The UNCHE has been criticised as having stated the need to resolve conflicts between environment and development without demonstrating the ways and means. The suggested solutions, "rational planning" or "integrated development" were flowery words without concrete substance.

Despite the criticism, UNCHE is usually identified as the key event in the emergence of global environmental concern.

1.2. UNITED NATIONS CONFERENCE ON LAW OF THE SEA(UNCLOS)III, 1982:

The law of the sea has evolved over centuries in pragmatic fashion through establishing a legal order based on generally accepted principles and practiced rules with the end in view to make the best use of the ocean peacefully and profitably within the technology prevalent in that era.

During evolution law of the sea addressed mainly navigation, freedom of navigation and fisheries. Subsequently it started established jurisdictional limits of the sea both for peacetime and wartime. As technological advancement led to increased drive to catch marine species and enhanced catching power, the law of the sea was used to establish ad hoc regulatory regimes, for example catching of some species of fish and cetaceans was regulated by quotas.

In the 20th century the discovery and development of new ocean resources like oil and gas under continental shelf, polymetallic nodules on the ocean floor, polymetallic sulphides and cobalt and manganese crusts on spreading ridges and sea mouths, energy potential from tides, winds and ocean thermal energy conservation, coupled with newer military uses of the sea led to a review the existing law of the sea.⁴

The post 2nd world war reality and the establishment of the United Nations greatly influenced decolonization; consequently newly independent developing countries emerged as part of a new international community. They started

demanding for new international economic order (NIEO). Later, the demand for a new international ocean order was also voiced by such countries.

Furthermore, the historic speech of the Maltese Ambassador Arvid Pardo in 1967 greatly influenced the UN. In the perspective of the demand for NIEO and for a new international ocean order, Pardo's historic speech and reports of the committee on the peaceful uses of the sea bed and ocean floor; the UN general assembly decided in 1970 to convene UNCLOS III, which was to adopt a single convention on almost all aspects of the law of the sea. Accordingly it was convened on schedule in December 1973, and after 11 long sessions, on its completion on 10th December 1982, it was signed by 118 states and the UN council for Namibia. The exceptionally large number of signatures obtained on the opening day created a precedent in the history of international law-making.⁴ During the next two years while the convention remained opened for signature, it was signed by another 39 and by EEC, which brought the total number of signatures to 159.

Despite the early enthusiasm for the convention the historic 60th instrument of ratification by Guyana was not received until 16 November 1993. The convention according to article 308, will finally enter into force on the 16th November 1994.

The UNCLOS III consists of 17 parts and 320 articles of which part 5 and part 12 are worth discussing as they are relevant to the mandates and recommendations on "ocean management and sustainable development":

PART 5 EXCLUSIVE ECONOMIC ZONE (EEZ)

Part 5 of UNCLOS consists of 21 articles (55-75) on EEZ.

Article 55 envisages specific legal regime of the EEZ :

"The exclusive economic zone is an area beyond and adjacent to the territorial sea, subject to the specific legal regime established in this part under which the rights and jurisdiction of the coastal state and the rights and freedoms of other states are governed by the relevant provisions of this convention"

Article 56 envisages rights, jurisdiction and duties of the coastal state in the exclusive economic zone as follows:

"In the exclusive economic zone, the coastal state has:

- (a) sovereign rights for the purpose of exploring and exploiting, conserving and managing the natural resources, whether living or non living, of the waters super adjacent to the sea-bed and of the sea-bed and it's subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from water, currents and winds;

(b) Jurisdiction as provided for in the relevant provisions of this convention with regard to:

- (i) the establishment and use of artificial islands, installations and structures;
- (ii) marine scientific research;
- (iii) the protection and preservation of marine environment;

(c) Other rights and duties provided for in the convention.

2. In exercising its rights and performing its duties under this convention in the exclusive economic zone, the coastal state shall have due regard to the rights and duties of other states and shall act in a manner compatible with the provisions of this convention."

Article 57 envisages the breadth of the EEZ, while article 61 stipulates about conservation of the living resources.

Article 62 is about utilization of living resources.

The concept of the EEZ has been viewed to be a major innovation and a cornerstone of the convention, which indicates the fact of unprecedented revolution in the international law relating to ocean resources. Within the EEZ (which extends beyond the territorial sea) all states continue to enjoy *jus communicationis*, but the coastal state exercises sovereign rights with regard to all natural

resources and other powers deriving from, or complementary to, those rights.⁵ Such a comprehensive, resource-oriented approach to the coastal states' rights and jurisdiction is without doubt the most significant development in the law of the sea since Hugo Grotius advocated the principle of freedom of the high seas in 1609. The introduction of an EEZ concept removed the traditional dichotomy between the territorial sea and the high seas came to an end.

PART 12. PROTECTION AND PRESERVATION OF MARINE ENVIRONMENT

The UNCLOS III defined pollution and established a general duty to protect the marine environment and necessary measures to be taken, and also outlined the methods of cooperation, including monitoring and technical assistance. It devotes an entire part- part 12 consisting of 46 articles- to the protection and preservation of the marine environment; of which first three articles (192, 193, 194) content the following:

Article 192

"General obligation:

States have the obligation to protect and preserve the marine environment.

Article 193

Sovereign right of states to exploit their natural resources pursuant to their environmental policies and in accordance with their duty to protect and preserve marine environment.

Article 194

Measures to prevent, reduce and control pollution of the marine environment

1. States shall take, individually or jointly as appropriate, all measures consistent with this convention that are necessary to prevent, reduce and control pollution of the marine environment from any source, using for this purpose the best practicable means at their disposal and in accordance with their capabilities, and shall endeavour to harmonize their policies in this connection.

2. States shall take all measures necessary to ensure that activities under their jurisdiction or control are so conducted as not to cause damage by pollution to other states and their environment, and that pollution arising from incidence or activities under their jurisdiction and control does not spread beyond the areas where they exercise sovereign rights in accordance with this convention.

3. The measures taken pursuant to this part shall deal with all sources of pollution of marine environment.

4. In taking measures to prevent, reduce or control pollution of the marine environment, States shall refrain from unjustifiable interference with activities carried out by other States in the exercise of their rights and in pursuance of their duties in conformity with this convention.

5. The measures taken in accordance with this part shall include those necessary to protect and preserve rare or fragile ecosystems as well as the habitat of depleted threatened or endangered species and other forms of marine life"

The comprehensive framework of the UNCLOS III is reflected by the use of the term "protection and preservation of the marine environment" which implies long term conservation objectives. Note worthy that the term "marine environment" includes marine life.

The norms-setting nature of the "Umbrella treaty" laid the principles and rules for preventive system of general environmental law.⁶ For example it codifies general principles of environmental law in Article 194, para 2, which of course, reaffirms principle 21 of Stockholm declaration.

The UNCLOS III is regarded to be the Magna Carta of the law of the sea and obviously it provides only the general legal framework for all aspects of the use of the oceans.

1.3. THE WORLD COMMISSION ON ENVIRONMENT AND DEVELOPMENT.

The world commission on environment and development (WCED) was created as a consequence of UN General Assembly resolution 38/161 adopted at the 38th Session of the United Nations in the fall of 1983. That resolution empowered the secretary general to appoint the chairman and the Vice Chairman of the commission and in turn directed them to jointly appoint the remaining members, at least half of whom were to be selected from the developing world. Accordingly the Secretary General appointed Mrs. Gro Harlem Brundtland of Norway, then leader of the Norwegian labour party (at present prime minister of Norway) as the Chairman and Dr. Mansur Khalid, the former Minister of Foreign Affairs from Sudan, as vice chairman. In turn they together appointed the members of the commission.

The commission held its inaugural meeting in Geneva from 1 to 3 October, 1984. There the commission selected the following eight key issues for analysis during the course of its work:

- * Perspective on population, Environment, and sustainable development;
- *Energy: Environment and development;

- *Industry: Environment and development;
- *Food Security, Agriculture, Forestry, Environment and development;
- * Decision support systems for Environmental management; and
- * International cooperation.

It agreed that it would examine these issues from the perspective of the year 2000 and beyond and from the perspective of their common sources in economic, social and sector policies. The commission published its report "OUR COMMON FUTURE" IN APRIL 1987 and submitted it for consideration by the UN general assembly during its 42nd Session in the fall of 1987.

"Our Common Future" claimed a very specific heritage, as Mrs. Brundtland wrote "after Brandt's programme for survival and common crisis, and after Palme's common security, would come common future". Like these predecessors its target was multilateralism and the interdependence of nations: the challenge of finding sustainable paths ought to provide the impetus indeed the imperative—for a renewed search for multilateral solutions and a restructured international economic system of cooperation.⁹

In "Our common Future" the definition of sustainable development is found to be "Development that meets the needs of the present without compromising the ability of future generations to meet their own needs." The concept of

sustainable development may be viewed to be global in scope and internationalist in formation.

However for consistency and relevance the ocean management aspects of the WCED report should be looked into:

"Looking to the next century, the commission is convinced that sustainable development, if not survival itself, depends on significant advances in the management of the oceans. considerable changes will be required in our institutions and policies and more resources will have to be committed to oceans management.

Three imperatives lie at the heart of the oceans management question:

- The underlying unity of the oceans requires effective global management regimes.
- The shared resources characteristics of many regional seas make forms of regional management mandatory.

The major land-based threats to the oceans require effective national actions based on international cooperation".

The commission believes that a number of actions are urgently needed to improve regimes for oceans management.

Thus the convention proposes measures to:

- Strengthen capacity for national action, especially in developing countries;
- Improve fisheries management;
- Reinforce cooperation in semi-enclosed and regional seas;

Strengthen control of ocean disposal of hazardous and nuclear wastes; and
Advance the law of the sea."

The commission opined about UNCLOS III though not in force that many of its provisions have been broadly accepted and have already entered into international law and practice. The commission suggested to encourage such process especially those provisions relating the environment. The commission strongly advocated for ratification of UNCLOS III. The commission was convinced that there can be no sustainable development without rational management of natural resources and it believed that there should be an institution for guidance and frameworks on policy, methodology, institutional arrangements and legislation for considering and incorporating environmental aspects into planning and implementation of economic development activities. The commission, therefore, proposed the elaboration of a new United Nations global convention formulating legal principles governing environmental protection and sustainable development and establishing a special UN Commission and a high commissioner (international "ombudsman") to that end.

1.4. UNITED NATIONS CONFERENCE ON ENVIRONMENT AND DEVELOPMENT:

The UN General Assembly, by its resolution 44/228 of 22 December 1989, decided to hold the United Nations Conference on Environment and development (UNCED) in June 1992 in Brazil, as an international forum to devise strategies that would fully integrate the relationship between environment and development into every aspect of economic life and behaviour. Accordingly the Earth Summit (UNCED) was held in Rio de Janeiro in June 1992.

The EARTH SUMMIT was unique in the history of international conferences. Never before had so many heads of states/governments participated in such an international negotiation, virtually all nations of the world attended and of them 114 were represented by their heads of states/governments.¹⁰

UNCED embraced a very wide array of concerns related to environment and development and addressed issues of "cross-cutting" dimensions (for example, from poverty, population growth and the role of indigenous peoples to unsustainable production and consumption (in the North), the role of women and technology transfer).¹¹

Five major outputs emerged from UNCED. They are (1) the Rio Declaration of Principles, (2) the convention on climate change, (3) the convention on Biological Diversity (4) Agenda 21, and (5) a set of forest principles.

Chapter 17 of Agenda 21 was devoted to oceans and coasts. It was the longest and, in some ways, the most comprehensive, of the 40 chapters making up the action plan (Agenda 21). For the present discussion the Agenda 21, Chapter 17 ("protection of oceans, all kinds of seas, including enclosed and semi-enclosed seas, and coastal areas and the protection, rational use and development of their living resources") deserves special examination here. This component of Agenda 21 has received wide attention, it being understood that critical environmental problems are shared globally and that oceans and coastal areas are key components of most of these global problems. Chapter 17 has been widely applauded for its concrete detail and comprehensiveness, for the inclusion of a number of forward-looking initiatives, and for the way in which it supports and builds on the Convention on the Law of the Sea. Now it is worth while to have a look at the original text of some particularly relevant parts of Agenda 21, Chapter 17:

INTRODUCTION

17.1. The marine environment including the oceans and all seas and adjacent coastal areas-forms an integrated whole that is an essential component of the global life-support system and a positive asset that present opportunities for sustainable development. International law, as reflected in the provisions of the United Nations Convention on the Law

of the Sea, referred to in this chapter of Agenda 21, sets forth rights and obligations of states and provides the international basis upon which to pursue the protection and sustainable development of the marine and coastal environment and its resources. This requires new approaches to marine and coastal area management and development, at the national, sub-regional, regional and global levels, approaches that are integrated in content and are precautionary and anticipatory in ambit, as reflected in following programme areas:

- (a) Integrated management and sustainable development of coastal areas, including exclusive economic zone;
- (b) Marine environment protection;
- (c) Sustainable use and conservation of marine living resources of the high seas;
- (d) Sustainable use and conservation of marine living resources under national jurisdiction;
- (e) Addressing critical uncertainties for the management of the marine environment and climate change;
- (f) Strengthening international, including regional, cooperation and coordination;
- (g) Sustainable development of small islands."

Of the 7 programme areas mentioned above area (a) deserves focus here:

" A. Integrated management and sustainable development of coastal and marine areas, including exclusive economic zones

Basis for action

17.3. The coastal area contains diverse and productive habitats important for human settlements, development and local subsistence. More than half of world 's population lives within 60 km of the shoreline, and this could rise to three quarters by the year 2020. Many of the world's poor are crowded in coastal areas. Coastal resources are vital for many local communities and indigenous people. The exclusive economic zone (EEZ) is also an important area where the states manage the development and conservation of natural resources for the benefit of their people.

17.4. Despite national, sub-regional, regional and global efforts, current approaches to the management to the marine and coastal resources have not always proved capable of achieving sustainable development, and coastal resources and the coastal environment are being rapidly degraded and eroded in many parts of the world.

Objective

17.5. Coastal States commit themselves to integrated management and sustainable development of coastal areas and the marine environment under their national jurisdiction. To this end, it is necessary to, inter alia:

- (a) Provide for an integrated policy and decision-making process, including all involved sectors, to promote compatibility and a balance of uses;
- (b) Identify existing and projected uses of coastal areas and their interactions;
- (c) Concentrate on well-defined issues concerning coastal management;
- (d) Apply preventive and precautionary approaches in project planning and implementation, including prior assessment and systematic observation of the impacts of major projects;
- (e) Promote the development and application of methods, such as national resource and environmental accounting, that reflect changes in value resulting from uses of coastal and marine areas, including pollution, marine erosion, loss of resources and habitat destruction;
- (f) Provide access, as far as possible, for concerned individuals, groups and organizations to relevant information and opportunities for consultation and participation in planning and decision-making levels."

Of the activities that Chapter 17 suggests, management-related activities deserves more attention, these are as follows:

17.6. Each coastal state should consider establishing, or where necessary strengthening, appropriate coordinating mechanisms (such as a high level policy planning body) for

integrated management and sustainable development of coastal and marine areas and their resources, at both the local and national levels. Such mechanism should include consultation, as appropriate, with the academic and private sectors, non-governmental organizations, local communities, resource user groups, and the indigenous people. Such national coordinating mechanisms could provide, inter alia, for:

- (a) Preparation and implementation of land and water use and siting policies;
- (b) Implementation of integrated coastal and marine management and sustainable development plans and programmes at appropriate levels;
- (c) Preparation of coastal profiles identifying critical areas, including eroded, physical processes, development patterns, user conflicts and specific priorities for management;
- (d) Prior environmental impact assessment, systematic observation and follow-up of major projects, including the systematic incorporation of results in decision-making;
- (e) Contingency plans for human induced and natural disasters, including likely effects of potential climate change and sea level rise, as well as contingency plans for degradation and pollution of anthropogenic origin, including spill of oil and other materials;

- (f) Improvement of coastal human settlements, especially in housing, drinking water and treatment and disposal of sewage, solid wastes and industrial effluents;
- (g) Periodic assessment of the impacts of external factors and phenomena to ensure that the objectives of integrated management and sustainable development of coastal areas and the marine environment are met;
- (h) Conservation and restoration of altered critical habitats;
- (i) Integration of sectoral programmes on sustainable development for settlements, agriculture, tourism, fishing, ports and industries affecting the coastal area;
- (j) Infrastructure adaptation and alternative employment;
- (k) Human resource development and training;
- (l) Public education, awareness and information programmes;
- (m) Promoting environmentally sound technology and sustainable practices;
- (n) Development and simultaneous implementation of environmental quality criteria."

Like the Rio Declaration, Agenda 21 is a non binding document. Yet, in signing the document, governments indicated a willingness to be part of the international

consensus seeking to move in the direction of a more sustainable society along the lines outlined in Agenda 21. From the international agreements and recommendations discussed in this chapter the mandate for sustainable development through integrated management of the ocean, in general, and EEZ, in particular has been established.

C H A P T E R I I

THE THEORETICAL ASPECT OF INTEGRATED OCEAN MANAGEMENT POLICY

Having established in the preceding chapter the mandates for and commitment to sustainable development through integrated ocean management policy, the theoretical aspects of it deserves examination now. It is worth while to make it clear that this chapter will cover "Integrated marine policy, Integrated national ocean policy and Integrated coastal zone management almost in a synonymous fashion.

Arild Underdal:

Arild Underdal of Oslo university in 1980 wrote "Integrated marine policy what ? why ? how ? "

This work has been regarded by the scholars to be the master piece and also the basis for development of subsequent other theories of integrated ocean management.

To begin with referring to the problem of multiple sea use conflicts Underdal emphasised some kind of coordination and efforts to arrive at joint decisions concerning the conduct of interdependent activities.

He put questions first, then discussed. To have the direct flavour of his work quotations from his work have been incorporated in the discussion:

What is an integrated policy ?

To integrate means to unify, to put parts into a whole. Integrated policy, then means a policy where the constituent elements are brought together and made subjects to a single, unifying conception.

More categorically he suggested that to qualify as integrated a policy must meet three basic requirements viz comprehensiveness, aggregation and consistency. These requirements refer to three consecutive stages of policy making process : comprehensiveness to the input stage ; aggregation to the processing of inputs ; and consistency to the outputs.

Each of the required components of integrated policy deserves elaboration :

Comprehensiveness requirement :

Comprehensiveness (scope) can be measured along at least four dimensions, viz time, space, actors, and issues. Integrating policy over time generally means adopting a

long-range view, evaluating policy alternatives not only on their short-term merits , but also on the basis of consequences accruing to a more distant future.

The space dimension refers to the extension of the geographical area for which consequences of policy decisions are recognized as relevant premises. In general, the carving up of ocean space into national zones, not always corresponding to distinct ecological systems or activity, means a loss in terms of spatial comprehensiveness.

Along the actor dimension, integration scope can be determined as the proportion of actors within a given activity system that is included in the reference group ie the group from whose perspective policy options are being evaluated.

Finally, along the issue dimension, integration scope can be measured in terms of the proportion of interdependent issues or issue aspects that are subsumed under a common policy framework. Thus, a nation managing its fisheries, off shore oil and gas production, and marine transport under a common policy conception can be said to have a more comprehensive marine policy than a nation treating each of these activities as a distinct and independent policy area.

Underdal also developed a simple mathematical version as follows :

$$C = P/K$$

Where C stands for comprehensiveness of certain policy,
K refers to the set of policy consequence.

And P refers to decision premises. Where during decision probable outcomes are considered in anticipation.

The ideal comprehensiveness of a certain policy will be achieved when $C = 1.00$

Aggregation requirement

According to Underdal Integrating policy means not only recognizing a broader scope of policy consequences, it also means basing decisions on some aggregate evolution of these consequences.

The aggregation notion refers to the extent to which policy alternatives are evaluated from an "overall" perspective rather than from the perspective of each actor sector etc.

Aggregation is viewed to be the critical component of the input processing or analytic stage where the choice of policy options would depend on the aggregate evaluation of consequences both in the short and long-term. Aggregation in fact represents the single most critical phase of developing an integrated policy because a concern for the

aggregate evaluation of consequences in the short and long term implies a concern for net benefit .

Underdal cautioned us about the danger of weighing cost and benefit of policy options from sum- perspective, which means:

Trading off one benefit for another as long as this serves to increase the sum of benefits for society as a whole .It may lead to (in real life situation) problems of interparty comparison of utilities, may cause much distributional consequences which are ethically questionable and politically infeasible.

Therefore, he suggested to seek for solutions (for aggregation requirement) that are Pareto optimal -" a solution is Pareto optimal- if no other solution can be found which would improve the outcome for at least one party without leaving any other party worse off."

Underdal concluded the aggregate requirement by putting that the integration of policy is not a purely technical exercise; it implies weighing interest and setting priorities.

Consistency requirement

Crudely defined, a consistent policy is one that is in harmony with itself - one whose different components accord with each other. consistency can be said to have a vertical as well as horizontal dimension. The vertical aspect refers to the accord between policy levels. From this perspective a consistent policy can be defined as one where specific implementary measures conform to more general guide-lines and to policy goals. Along the horizontal dimension, consistency can be translated into a requirement that - for any given issue and policy level - only one policy is being pursued at a time by all executive agencies involved.

Besides, consistency implies some notion of equal treatment of equal cases. It also implies stability over time. However, it is advisable to view the consistency of a given policy "at a given point in time or over a rather short period of time."

Underdal suggested to pursue the integrated policy to cope with the externalities of "over produced" and "under produced" In other words, to have an optimum solution the marine policy should have to be integrated.

The method of integration can be both direct, i.e, centrally controlled by the government and indirect, via research, training and socialization programmes which seek to develop a more holistic and comprehensive perspective among decision makers.

The concluding remarks of Underdal about policy integration are as follows:

What to integrate should be determined not on the basis of physical notions about "whole", but rather on the basis of what empirically constitutes distinct interaction systems _ characterized by internal interdependence and external autonomy. Moreover in deciding whether or not to make efforts at improving policy integration in a certain issue_ areas, it has to be recognized that integration efforts usually imply (opportunity) costs, and that net gain is the crucial variable to measure. If one takes an integrated view on policy integration, some imperfection will most often not only be unavoidable but also optimal.

Underdal himself admitted (as above) the limitation of his preliminary work that did not adequately address the cost aspect. But in the subsequent theories of integrated policy "the cost effectiveness" requirement has been incorporated. However, Underdal ushered in a new dimension for an ocean management policy concept. His pioneering work has been serving as the foundation for integrated ocean management theories and most of those have been pivoting around his classic work.

Professor Edward. L Miles

Professor Miles is one of the authorities in integrated ocean/marine policy. Accepting Underdal's analysis of integrated policy Miles put emphasis on the cost aspect. He suggested not to try integration beyond the point where the marginal cost of integration effort equals the gain from policy improvement.

He suggested that government trying in to organize its ocean policy making infrastructure, or in case of most developing countries, creating such an infrastructure, the government must address the following questions in addition to questions concerning objectives and priorities:

- 1) what activities is it necessary to manage and at what cost ?
- 2)When, where and with respect to what activities is government regulation cost effective ?
- 3) Are there more cost effective alternatives to regulation(e.g built in incentives and deprivations) ?
- 4)What criteria are appropriate for responding to competition and conflicts between patterns of ocean use ?
- 5)With respect to what issues and activities is there a need for an integrated national ocean policy ; what can be left to the implementing agencies ?

Miles made also his own contribution to the "modus operandi" of integration. Underdal discussed and distinguished between two approaches to policy integration: the direct route via command and the indirect route via research, training, analysis, and institutional design.

Miles designed a third approach which is intermediate between the two extreme approaches of Underdal. According to him both the extremes were rejected. The first extreme of expanding the capabilities of different sectors to deal with multiple use conflicts, was rejected because it does not go far enough and would not solve the problems identified. The second extreme, of centralizing all ocean activities in a single ministry, was rejected "because it would consume the energies of all participants in a massive battle to protect and/or enlarge organizational domain (turf), which would deflect the entire attempt and render it unfeasible."

His solution requires that the individual sector should continue to exist to support the level of specialization needed to manage that sector's operations. Simultaneously the solution endeavours to provide the nation with a capability to integrate policy in terms of clearly defined notions of national net benefit. "This capability would be overlaid on the sectors and would be based on limited direct (command) approaches augmented principally by indirect approaches as identified by Underdal."

The limited direct approach would be to vest overall responsibility for coordinating sea-use planning and ocean development activities in a cabinet-level appointment. This need not be a new position. Indeed it is preferable if one of the existing agencies be designated the lead agency, the

choice contingent upon which ocean uses are most significant for the country in question.

Apart from formulating and implementing integrated national ocean policy the agency would also harmonize sector policies towards national objectives and strategies. The Executive branch, the legislature and the marine user community could be involved in open analytic exercise to define national objectives and strategies. The exercise would obviously address the following four fundamental questions covering the whole spectrum of ocean uses in the particular country:

- 1) What do we want ?
- 2) What should we want, given our biogeophysical conditions?
- 3) How do we get there ?
- 4) What are we prepared to pay to get there ?

After the proposed exercise is over the government should be equipped with required knowledge and will have a clear idea about the following questions:

- A) What activities need to be managed ?
- B) When and where government regulation would be appropriate?
- C) What more cost effective alternatives to regulation might be feasible ?

Consequent upon the exercise one can expect at least the following outcomes:

- (1) an articulation of short and long-term goals;
- (2) goals should be few in number and ranked in order of priority;
- (3) an explicit process for coordinating policy across all marine sectors;
- (4) a requirement for annual reports to the nation evaluating performance in relation to stipulated goals;
- (5) creation of intersector links to facilitate communication and common awareness of problems; and
- (6) allocation of authority adequate to assigned responsibilities.

As a concluding remark Miles stated "Realistically, however, the existing fragmented, sectorally based model of institutional design will be a major constraint on getting from where we are to where we want to be."

Therefore, he paid special attention to the issues of institutional design and he offered the following advice to the governments of coastal states:

- 1) Avoid large-scale fights over major reorganizational initiatives (e.g., creation of a new ministry gobbling up significant activities of others). Seek instead an incremental approach.
- 2) Seek to broaden the scope of narrowly focused sectorial planning to take account of interactions and dependencies.

- 3) Involve all agencies and interest groups concerned with diverse marine and coastal interests and activities.
- 4) Seek to develop an overall focus with defined national interests.
- 5) Ensure that organizational innovations are compatible with local culture. What works in one country is not necessarily directly transferable elsewhere.
- 6) Seek to develop both horizontal and vertical integration (i.e across and within sectors) in planning.
- 7) Foster the capability to evaluate ocean development projects from sectorial as well as national perspective.

After professor Miles' pragmatic approach two other approaches toward integrated coastal zone management are discussed in this chapter.

Biliana Cicin-Sain :

Beliana Cicin-Sain is from the centre for the study of marine policy, graduate college of marine studies, university of Delaware, Newark, USA; he is also the coeditor-in-Chief of the Ocean and Coastal Management Journal.

In the article "Sustainable development and integrated coastal management", part two is devoted to "the meaning and limits of integrated policy".

As has already been referred, he too started from the "Master piece" of Underdal. He developed a tabular version to dimensions of policy integration of Underdal. And, he propounded his own ideas and concepts subsequently.

Apart from Underdal's dimensions of policy integration Cicin-Sain suggested in the coastal marine context several dimensions of integration which are as follows:

(1) Integration among sectors--

- Among coastal/marine sectors (e.g oil and gas development, fisheries, coastal tourism, marine mammal protection, port development);

- Between coastal/marine sectors and other land-based sectors such as agriculture;

(2) Integration between the land and the water sides of the coastal zone;

(3) Integration among levels of government (National, Subnational, local)

(4) Integration between nations; and

(5) Integration among disciplines (such as natural science, social sciences and engineering)

He put special emphasis on different information and knowledge aspects for improved policy integration. We must have good information on existing problems among sectors, what implication they have and how much they may cost to resolve. In spite of strongly agreeing with the Agenda 21 emphasis on integration, he suggested to keep in mind the following caveats on policy integration:

(1) No every interaction between different sectors is problematic and therefore in need of management. Adequate study of relations among sectors and uses is imperative to understand the extent to which such interactions are mutually harmful, beneficial or neutral.

(2) Integrated management does not generally replace sectorial management, but instead supplements it. Generally

different individuals and institutions will be involved in sectorial management vs in policy integration.

(3) Policy integration is often best performed at a higher bureaucratic level than sectorial management to insure that an overall, rather than a fragmentary, Perspective is pursued .

(4) The costs of policy integration should be kept in mind Since policy integration will often be difficult and costly to put into effect, sometimes the costs of integration may outweigh the benefits - such a prospect, of course, should be guarded against.

He recommended that policy integration should not be viewed as an absolute, but rather as a continuum as depicted in the figure furnished below:

.....Less integratedMore integrated
Fragmented..communication..coordination..harmony..integratio
n
approach

Fig. continuum of policy integration

Movement from left to right on the continuum means movement from a situation of less integration towards more integration which enable one to characterize the following situations:

1) Fragmented approach - It indicates a situation where different entities exist but with little communication among themselves;

2) Communication - It refers to the existence of a forum for regular meeting or exchange of views among the independent units;

3) Coordination -It is viewed to exist when the independent units take some action to synchronize their work;

4) Harmonization - It should be found when the independent units pursue synchronized works under the framework of a set of explicit policy goals and directions, set at a higher level;

5) Integration -This is may often involve reorganization of the existing institutions, for there should be more formal mechanisms to synchronize the work of various units.

Consequent upon the reorganization the independent units may have to surrender at least part of their independence with

a view to make positive response to explicit policy goals and directions .

In conclusion, referring to the paradigm shift toward sustainable development he suggested that it is imperative that we think much more than we did in the past about how our action in one policy and in one nation affect other policy areas and other nations. From any policy area certain specific steps could be identified to help achieve better integration.

He also identified "good research" as one of the keys to achieving better integration. For research he put emphasis on the links between different sectors in a policy area as well as with other policy areas associated problems. Research should be on the costs/benefits analysis of fragmented and sectorial policies versus more integrated ones.

Adalberto Vallega:

Adalberto Vallega of the University of Genoa, Italy, developed his coastal management theory in his article " A Conceptual approach to Integrated Coastal management". He propounded a historical model of coastal management :

Putting the emphasis on the need for multi-disciplinary approach he wrote:

Management goals the spectrum of coastal uses to be managed, the extent of the coastal area and its subsequent environmental implications have expanded and evolved contextually and so intensively that effective management involves an increasing number of disciplines -- Geomorphology, Marine geology, Oceanography, Law, Economics, Geography, to mention a few -- which were called on to make progress in building up multi-disciplinary, integrated views.

According to him the maturity stage of coastal management has three characteristics:

- 1) Consistency with the sustainable development principle.
 - 2) A non - mechanistic concept of the ecosystem .
 - 3) Multi-disciplinary approach based on isomorphisms;
- which deserve elaboration:

- 1) Consistency with sustainable development principle:

As nations agreed and committed in UNCED to pursue sustainable development, the national coastal management programmes must be in conformity with sustainable principles

and must be consistent with a country's sustainable development goal.

2) A non-mechanistic concept of the eco-system:

The natural environment should not be viewed to be a range of physical or biological features; rather it should be perceived in view of a coastal ecosystem as a whole.

This view widens the content of management as well as implies that eco-systems are not being perceived in a mechanistic way.

Unlike the conventional approach which viewed the eco-system as a machine which always gives the same response to the same kind of stimuli, the non-mechanistic view recognizes that the eco-system does not necessarily give the same response to the same kind of human stimuli.

For sustainable development a sound concept of the ecosystem, the conservation of the environment as a whole, and the creation of clean technologies gained proper relevance.

3) Multi-disciplinary approach based on isomorphisms:

In the multi-disciplinary approach to integrated management, ethics is becoming prominent. For which Vallega wrote :

This encourages scientists (i) to use, inter alia, the concept of ethical value in order to evaluate coastal management programmes, and (ii) to build up scientific isomorphisms. Ethical values are referred both to the relationships between human behaviour and the ecosystem (the more the integrity of the ecosystem is pursued, the more coastal management is ethically consistent), and to social relationships (the more social equity is guaranteed the higher is the ethical standard of coastal management).

Isomorphisms are intended as principles and concepts accepted by all disciplines -- namely, physical, biological and social -- involved in coastal management. As an example, the concept of structure -- defined as a set of elements closely linked to each other -- is an isomorphism since it is used to describe the coastal ecosystem as well as the coastal community, the legal framework, and others.

In the part of "Integration and general systems-based approach", he discussed the general systems-based approach and its implications and application to integrated coastal zone management.

The general system theory is based on four principles :

i) relevancy

- ii) holism
- iii) teleology
- iv) agregativity .

Relevancy requires that whatever is included in knowledge must be relevant to the objective pursued by knowledge. Holism (or ■) implies that everything included in knowledge must be viewed as part of a whole and must be assessed with reference to the totality. Teleology implies that everything included in knowledge to be considered in its evolution and in view of target orientation. Agregativity refers to the fact that only a sub-set of reality can be known. Therefore, agregativity requires such criteria through which the set must be enunciated.

For integration, he focused on the following four areas of attention :

Integration in objectives:

From the above mentioned theory he derived that, first of all, integration refers to objectives. And, he wrote:

In this respect UNCED guide-lines drive coastal management towards the integration between development and environment objectives transcending both development-oriented approaches (Stage 1 -- preparation for take off) and those characterized by unsolved conflicts between development and

environment (Stages 2 and 3, take off and the drive to maturity). The integrated objective is considered as:

* Consisting of a holistic approach, in which the ecosystem as a whole (all the biotic and a biotic components) and all kind of coastal use, as well all uses -- use and use -- ecosystem relationships, are included;

* Meeting two ethical needs, namely, the integrity of the ecosystem (environmental ethics) and the enjoyment of the ecosystem for future generations (social ethics);

* Assuming the optimization of renewable natural resources and the minimization of non renewable resources as the basis of economic efficiency;

* Assuming the minimization of man-made ecosystem changes as the main environmental goal.

He suggested that if the above mentioned assumptions are agreed, then the Integrated Coastal Zone Management concept as proposed in Caracas 1992, would be a "meaningful example"

of how management could be oriented toward a "general system-inspired approach".

Coastal ecosystems

A single coastal system is one of the prerequisites of Integration. The single coastal system should comprise of both the ecosystem and coastal uses ("human presence and pressure, human activity and social behaviour") Therefore, coastal management is viewed to be integrated when a single programme covers the whole extent of one ecosystem, or a set of contiguous ecosystems. This has two implications:

- i) the ecosystem, or set of contiguous ecosystems to be identified, and
- ii) the whole area covered by the ecosystem(s) to be placed under the umbrella of a single national jurisdictional framework.

To have a holistic approach he suggested that for delimitation criteria to be based on contextual consideration of the biotic and a biotic components of the coastal ecosystem. And, according to him, the legal tools for delimitation should be consistent with "environmentally sound and ethically motivated principle".

External environment

According to general systems theory external environment is the set of all elements outside the structure and with which the structure is linked. As a system the coastal area interacts with its own external environment, receiving inputs from it, and changing its internal state to react to these inputs and finally giving inputs from the coastal system toward its external environment.

Management of a coastal area has to be integrated to the external environment. In the perspective of sustainable development at least three components of external environment are relevant for Integrated Coastal Zone Management :

1) The natural cycles need to be assessed; their future evolution should be predicted and the possible impacts (on the local scale) are to be evaluated. The approach from the International Geosphere Biosphere programme which is based in part on the analysis of changes in climate, hydrological and sedimentary cycles etc. seems relevant.

2) Legal framework is considered to be a crucial component of external environment. Legal framework, be it in the form of international or regional conventions, or in the form of national legislation for jurisdiction, is expected to be consistent with Agenda 21 requirements. The degree of congruance between the evolving legal framework and coastal

management represents the extent of integration (of management) with external environment.

3) Decision-making systems (International organization, National and Local authorities, Financial institutions, Manufacturing and Tertiary companies) as a whole need to be restructured so that they can make positive response to the objectives and guide-lines by Agenda 21.

Coastal uses as coastal functions

Here integration refers to two principles of general system-based approach namely holism and relevancy. He put the two principles' requirement in the following manner:

"To be congruent to the holism principle, management is integrated not only when all the uses are included in a single framework but also when both potential and expected uses are considered together with those in practice."

"The relevancy principle requires that coastal functions, namely, they are considered according to the effects that, during their action, they have on the coastal area and its external environment. As a result integration exists to the extent that these effects are consistent -- hence the principle of relevancy with the management objectives."

This principle, gave attention to conflict assessment and focused on measures to prevent and mitigate the conflict.

The relevancy-based approach requires first, an assurance that the conflicting uses are in conformity with sustainable development, only then can the intrinsic reasons for conflict be considered. Where mitigation of conflicts is to guarantee that certain agreed constraints which stemmed from the sustainable development principle are taken care of

To sum up, it is evident that chapter that there is a sufficient theoretical base for integrated ocean management policy. Starting from Underdal, we find three fundamental pillars of Integration namely comprehensiveness, aggregation and consistency. For comprehensiveness he viewed it along four dimensions, namely time,space, actor and issue.He also talked about both vertical and horizontal integration.

Without elaborating much it can be concluded that his work has been a masterly one.It may look idealistic in approach,yet it is a classic example of a multidisciplinary approach where he blended philosophy, welfare economics and management together.

Professor Miles, as has already been mentioned, extended Underdal's theoretical ideal model "one step farther". His approach is pragmatic one,it sought to solve the problems with the experience and lessons from real life situations. Differing with Underdal's extreme views on the ways to

achieve integration, he proposed an intermediate way. More over he suggested the governments to put certain fundamental questions at the beginning. He also suggested some practical advice to governments to achieve integrated ocean management policy.

Biliana Cicin-Sain in his article "Sustainable development and integrated coastal management" he developed a tabular version to Underdal's dimensions of policy integration. He propounded a policy continuum which shows the movement from less to more integrated situation. He focussed on two outcomes of UNCED namely interdependence and integration, and he also developed a model of international trade system between the North and the South which potrays the interdependence of environment and development and also indicates the levels at which most stresses occur. His work is recent and it centred around the agenda of UNCED, specially around sustainable principle and objectives.

Adalberto Vallega in his "Conceptual approach to Integrated Coastal Management" put a table showing historical model of coastal management. In that model he showed the development from the 60's to that of 90's. For maturity stage he indicated three characteristics namely 1) consistency with sustainable development 2) non mechanistic approach to ecosystem and 3) multi-disciplinary approach of management.

Finally he developed his view in conformity with general systems-based approach and he incorporated relevancy, holism, teleology and agregavity there.

Vallega's approach is much more idealistic one where he dealt with ethics even.

To conclude I like to comment that Underdal's work is the mile stone and Miles extended Underdale's work in a pragmatic way. The other two theories or concepts centred around sustainable development principle and objectives which is the outcome of the Earth Summit.

Given the theoretical base it is advisable to look in to the practical aspects of integrated ocean manegement.

Therefore, in the following chapter relevant case studies are discussed.

C H A P T E R I I I

In this chapter case studies from the U.S.A and from the Netherlands are discussed.

1. OCEAN MANAGEMENT POLICY IN THE UNITED STATES OF AMERICA

The United States of America (USA) is the world within itself. It is undoubtedly one of the leading traditional maritime nations. Comprising of 50 states (35 of which coastal) and having all sorts of variety and complexity it possesses the uniqueness of its own.

Therefore, the state of Ocean Management Policy practices of the US deserves elaboration.

1.1. Historical perspective:

The ocean policy in the US evolved almost independently and in isolation. This has grown in conformity with the prevailing socio-economic and geo-political reality of the US. Freedom, individualism etc are the essence of the US society therefore, the ocean/ maritime policy evolved in the similar fashion. According to Robert W. Knecht "Given the large ocean areas and low levels of and low levels of efforts involved, and, hence the relative lack of interaction and/or conflict, these activities grew into generally autonomous activities. Eventually separate

institutions, specialized legislative and regulatory frameworks, and sectorially based constituency groups evolved as separately as a part of the maturation process of each of the sectors. Thus, the roots of the sectorial orientation of U.S. Ocean Policy can be traced back to the isolated manner in which individual ocean activities tended to develop and mature."

Before 20th century U.S. interest in the ocean was concentrated on and around transportation and military aspects. Like the British the U.S. used to view freedom of navigation with utmost importance. Apart from the transportation, growing aspects of Navy in the interest of national security. Fishing and Whaling could be traced back in the early USA.

It is true that none of these activities were induced by the government policies, all were autonomous in emergence. Government intervention was neither needed nor was sought by any corner. Therefore, there existed no policy prescription from the government.

Most probably the first need for national ocean policy stemmed from coastal fisheries' conflict with Canada. The need for agreement on allocation fisheries resources in the areas of Gulf of Main and Grand bank required U.S to pursue appropriate policies. In 1793 Thomas Jefferson, as secretary of State, claimed a three mile territorial sea for

the U.S. which should be viewed to be the first National Policy decision of U.S.

In fact with the lone exception of Jefferson's action there existed no "articulated ocean policy" nor was it necessary in the us untill 1945 .

The early institutional framework of checks and balances created an interlocking system where institutions were separate but used to share the powers. Knecht observed "These early designs, coupled with the trend since the early 1970's toward legislative and bureaucratic decentralization (and fragmentation) has led to a situation which is decidedly uncongenial to coherent national policy making, especially as regards cross cutting policy areas such as oceans, energy, and the environment."

The most "modern" U.S. Ocean Policy evolved during last four decades from the mid forty's (1945) to the late 80's (1988). But the core of the existing Ocean Policy was formulated during 1969-1983.

Several commissions studied jurisdictional and management problems in the oceans. The most comprehensive study was done by the "Stratton Commission" (Named after its chairman Julius Stratton) which published the report "Our Nation and the Sea" in 1969. The report established priorities and provoked debates over national marine policy for several years, of course, many of its recommendations were adopted.

It is worth while to comment that comprehensive ocean policy legislations were enacted up to 1970. For examples the creation of marine science council in 1966, the environmental impact statement process and the council on environmental quality, and the creation of the National Oceanic and atmospheric administration and the Environmental Protection agency in 1970. Those earlier legislations reveal some sort of integration while the subsequent actions from 1972 may be termed fragmented and isolated ones.

1.2. National ocean policy in the U.S.

The submerged lands Act of 1953 set the "borders between state jurisdiction and control of ocean resources and that of the federal government (at three geographic miles)".

Apart from that all the existing U.S. National Ocean Policy was enacted after 1965. "In 1966, legislation was passed creating the innovative Sea grant college program and legislation was enacted which began the modern era in U.S. Ocean Policy... the Marine Resources and engineering Act of 1966".

As has already been mentioned Stratton commission was created along with a marine science council in 1966. Both were influential and instrumental in setting premises for forthcoming U.S. Ocean Policies.

The Stratton commission was a high level commission which worked for two years comprehensive study on all aspects of

Ocean and Coastal Policy. A good number of recommendations were implemented. The most important recommendation was the proposal for creation of a new national oceans and atmosphere agency which would bring together all of the ocean activities which were then scattered in many departments and parts of the federal government. But in 1970 president Nixon created the National Oceanic and Atmospheric Administration (NOAA) without fully implementing the recommendation as it did not incorporate Coast Guard and some important ocean programmes were left in EPA, the Interior Department, and the U.S Army Corps of Engineers.

Another important recommendation was enactment of National Coastal Zone Management (CZM) legislation which came into being in 1972 as the Coastal Zone Management Act and became an integral part of U.S. National Coastal Policy.

The general nature of the requirements of the federal CZM statute allowed ample freedom to the states to form their respective CZM programmes. To have more specific requirements for the programmes the act was amended in 1980. Eventually in 1990 the congress went for further amendments to have more specific requirements.

Starting from 1966's Marine Resources and Development Act creating the Marine Science Council and the "Stratton Commission" down to 1990 enactment of major oil spill liability legislation promoted by the Exxon Valdez grounding

in Alaskan waters - are the examples of series of major Ocean Policy Actions of the U.S.

In Knecht's words "In many respects the six or seven years centred on around 1969 represent the unequivocal high point in national attention to ocean policy making in the United State."

1.4. ARE U.S. OCEAN POLICIES INTEGRATED ?

Integrated policy is essentially based on at least three components namely comprehensiveness, aggregation and consistency. Those requirements for policy integration were discussed in the preceding chapter at length . Cost effectiveness as the fourth requirement emerged in the literature of ocean management.

Though we don't elaborate these requirements while measuring the degree of integration of US policy, it is advisable to keep in mind those requirements.

About the US ocean policy Professor Miles commented the following:

The United States provides perhaps one of the most extreme examples of fragmentation in its marine policy establishment that it is possible to find . The general accounting department (1975) noted that the U.S. National Ocean Program was dispersed through 21 organizations in 6 departments and 5 agencies in 1974.

About the consequences of the above Miles then Quoted from the second annual report of the National Advisory Committee on ocean and atmosphere (NACOA,1973) as follows:

There are too many actors, too many separate claims of command, too many cross-cutting policies, too many separate budgets appropriations and programs. In this confusion, national priorities have no perspective and neither the executive Branch nor the Congress is in a position to lead effectively much less enforce accountability for results. On the other hand out of numerous cross-sectorial ocean conflicts prevalent in recent years Knecht identified following five to be more visible ones:

Conflicts between oil and gas activities and fishing

Conflicts between off shore oil and gas activities and offshore coastal planning and management

Conflicts between off shore oil and gas activities and marine mammals

Conflicts between marine mammals and commercial fishing

Conflicts between competing uses for coastal Wetlands

"as between protection as a productive ecosystem and use in coastal development.

Apart from the conflicts stated above, Knecht et al generalised the difficulties associated with the present system of governance of the U.S. Ocean and identified two fundamental problems:

1) The jurisdictional split among levels of government

In the U.S.

There are three jurisdictional belts for coastal and ocean areas:

local governments generally control shore line use;
state governments have jurisdiction over the belt of ocean from the tidemark out to the three-mile limit ;
the federal government has jurisdiction from three to two hundred miles.

They observed the following major problems caused by these jurisdictional splits:

Because many of the most important ocean activities traverse or impact all three jurisdictions, a major complexity is added to the planning and management of these activities in the absence of an effective mechanism to coordinate the actions of all levels of government; and the benefits and costs of ocean resources exploitation frequently fall disproportionately on different jurisdictions; exacerbating inter jurisdictional frictions.

2) The sector by sector approach in the management of different ocean resources/uses.

It is found in federal and state jurisdictions that each resource/use is typically under the jurisdiction of a different agency operating under a different legislative framework, for example, a specific federal statute and agency administer fisheries management, a different statute and agency manages off shore oil department, while a third

agency is entrusted with the responsibilities of water quality and related issues.

Knecht also put forward certain indicators showing incompleteness or partial failure of the U.S policy process which are as follows:

A virtual stalemate currently exists between certain states and the federal government over off shore oil development. Existing fishery management policies and programs do not seem to be capable of halting the serious decline in many commercial and recreationally important fish stocks. The nation as yet has no national policy and program for handling the very extensive EEZ:

Regulatory frameworks do not yet exist for certain emerging EEZ activities such as hard minerals and off shore aquaculture;

Governance arrangements for the recently expanded territorial sea remain to be addressed;

The policy decision to prohibit the ocean dumping of municipal sewage sludge after 1991 appears to have been taken without the benefit of a study of the land-based consequences of such a ban and without a thorough examination of alternative approaches to the use of the oceans for certain waste disposal practices.

Despite the fact of the U.S. Ocean Policy lagging far behind integration, two cross sectorial devices namely National Environment Policy Act and the Coastal Zone Management Act (through the amendments) should be viewed as positive moves toward integration.

While national ocean policy in the U.S is found to be highly fragmented and still at rudimentary stage it is interesting to see the efforts of certain coastal states of the U.S to move towards integration.

1.5. STATE OCEAN MANAGEMENT POLICY IN THE USA

In the preceding discussion we found how far the US on the national level lags in developing more integrated approach for ocean management. But some states like Hawaii, Oregon, Alaska, California have already taken initiative towards a more integrated approach toward ocean management. Hawaii and Oregon for instance have developed ocean management plans for the waters off their coasts. Hawaii and Oregon efforts towards integrated ocean management deserve elaboration. Both have formulated their ocean management plans going beyond traditional coastal zone management obligations.

HAWAII:

Hawaiian initiative to the management of ocean resources off the hawaiian islands is traced back in 1969 when they

prepared and published a plan for state action. In the early 80's a comprehensive ocean management procedure was drawn up. Taking the 1985 ocean Management plan as starting point the state of Hawii published the Hawii Ocean Resource Management Plan in January 1991. The whole Exclusive Economic Zone falls under the geographical scope of the plan.

This was possible for an amendment to Hawii State constitution in November 1988 which asserted Hawii's right and interest in the Exclusive Economic Zone. As a result the EEZ was incorporated into the State's Ocean Regime. The plan was categorically designed to address five critical ocean and coastal resource problems and to have better anticipation and amelioration of potential problems.

The identification of these major problem areas is simply the recognition of the importance of a more integrated approach. The plan then developed a number of overall and sector specific recommendations. The overall recommendations included a new governance structure i.e. establishment of Marine and Coastal Affairs' office in the Governor's office, and a number of priority ocean management recommendations such as the implementation of a regional planning approach, improving the information base, establishing social and environmental carrying capacities, the development of conflict resolution procedures, the enforcement of ocean use laws and regulations, the improvement of public

participation and the anticipation of critical issues. The sector specific recommendations included research and education, ocean recreation, harbours, fisheries, beaches and coastal erosion, waste management ,aquaculture, energy and marine minerals.

It seems that Hawaii is moving towards integrated ocean management as the plan is quite explicit in asserting that improvement of coherence and coordination should be a major issue. It seems to be comprehensive too as it covers the whole EEZ recognizing the relations with terrestrial factors and attempting to cover all relevant aspects.

The sequence of plans since 1969 suggests some consistency over time as it did not try to achieve the same objectives during this whole period rather it tried to incorporate experience from previous planning efforts in new ones.

OREGON :

The Oregon ocean plan identified two sets of driving forces; one identified economic and cultural importance and influence of the Oregon coast and the Pacific Ocean to the Oregonians and another one national and international forces put new demand for ocean and coastal resources which generated interest in exploring Oregon's ocean resources.

The Oregon Ocean Resource Management Act in 1987 is the basis of Oregon's ocean planning efforts. The act created

the Ocean Resources Management Programme. The purpose of this programme is to plan for coordinated and comprehensive management of ocean uses and resources off the Oregon coast. It linked together state agency programmes, Federal programmes, Local government interests, and public concerns into a coordinated planning and management programme.

Most importantly Oregon has identified an "Oregon Ocean Stewardship Area" an ecologically sensible area for coordinated comprehensive management of ocean resources of direct concern or responsibility of the State of Oregon". The area comprises of the entire continental margin from mean high water along the coast across the continental shelf and down to the bottom of the continental slope. The played very smart by not claiming ownership or possession of this entire area and therefore, the designation of this area does not change existing jurisdictional boundaries.

Oregon's ocean policy is based on the objective that Oregon will "conserve the long term values, benefits, and natural resources of the Ocean both within the State and beyond by giving clear priority to the proper management and protection of renewable resources over non-renewable resources . "This policy and policy related other goals to be achieved through a four-part ocean resources management programme as follows:

- 1) the Oregon Ocean (Resource Management) plan
- 2) the coastal zone management program
- 3) interagency task force

4) state agency programs for regulation of ocean uses and activities.

The ocean plan in turn has also four major elements which we need not discuss here. But the Oregon ocean plan contains a large number of recommendations; the relevant ones are:

- 1) recommended policies for conservation
- 2) recommended policies for habitat protection
- 3) recommendation "with respect to resource issue (ocean fisheries, marine birds and mammals, inter tidal plants and animals, recreation, tourism and cultural resources, water and air quality, oil and gas, oil spills, and marine minerals)."

The plan has also identified certain tools for its implementation which needs no elaboration here.

Gerad Peet commented on the integrated character of the Oregon plan as "Oregon has already moved beyond integration in recognizing the need for coordination between different partners in planning rather than striving for centralized institutions. Comprehensiveness and coherence are visibly important characteristics of the Oregon Ocean plan."

To sum up, we found the U.S national ocean policies to be highly "fragmented" and at "rudimentary" stage, while some of its coastal state embraced integrated policies.

Given the internal pressure (by the scholars and academicians for integrated policies and the demonstration

effects of its State's initiative for the same) together with the international commitment to sustainable development and the fact of UNCLOS III coming into force will result in the U.S pursuing integrated ocean policy.

2. OCEAN MANAGEMENT POLICY PRACTICES IN THE NETHERLANDS

The Netherlands is the unique case of having integrated ocean management policy practices. They have more than a decade's experience in the way to integration. They have incorporated the sustainable development principles and objectives in their national ocean management policy.

Professor Miles compared and contrasted national ocean policies of the U.S. and the Netherlands. About the U.S. policy he detected the following failures:

- (i) High Degree of fragmentation
- (ii) Intense State/Federal Jurisdictional conflicts
- (iii) Ocean is low priority
- (iv) No capacity to produce integrated management

In contrast he found the following successes of the Netherlands policy:

- (i) Ocean is high priority
- (ii) Intense multiple use conflicts
- (iii) Systematic Development Process for making Integrated ocean policy
- (iv) Cross_sectorial links at all levels

Professor Miles commented "The Dutch system is recent, deliberate and analytically sophisticated." Therefore, we could derive some lessons from the Dutch experience.

2.2. Background of the Dutch policy integration:

The North Sea is surrounded by a number of industrialized countries which resulted in dense traffic and pollution. It may be viewed as a special area because:

- 1) it is a source of natural wealth: not only fish but also minerals such oil and gas;
- 2) it is busily navigated by merchant navy, fishing vessels, naval ships and pleasure craft;
- 3) it is rather polluted especially by land-based sources, shipping and off shore platforms.

Therefore, the Dutch Government assigning "high priority to ocean" sought to integrate its North Sea policy. In 1982 the Dutch Government issued a policy document on the harmonization of North Sea policy. The policy intentions in this document were based on open public comments, external recommendations and on administrative consultations. In 1984 this led to a government decision on the harmonization of the North Sea policy, which was debated in the parliament and was accepted by the lower house of the parliament in February 1985.

The policy was intended to result in a more coherent approach to numerous topical issues relating to the North Sea. In 1984 the government decided on the following:

- 1) A policy framework systematically states current policy on the North Sea which provided "a frame of reference for the assessment of new plans";
- 2) An action programme "that listed current and planned measures in a broad field from policy preparation to implementation of policy";
- 3) An institutional framework of bodies like ICONA were formed for further development of the harmonization process.

Since 1985 the parliamentary special committee on Harmonization of North Sea policy has been receiving and discussing the annual progress reports on the action programme and the latest developments in the North Sea policy which are furnished by the coordinating minister for the North Sea affairs. The Netherlands Government's North sea policy bases on the premises namely what is not permissible and what must be done concerning the North Sea. In 1988, the government re-examined the decision made in 1984, modified it and issued a new policy framework, action programme and institutional framework. The new policy framework was more polished and up to date, especially concerning the care for the environment and sustainable development.

2.3. NORTH SEA POLICY OF THE NETHERLANDS

The government pursues an effective North sea policy to create new opportunities while ensuring responsible management both for present and future. They identified five facets and accordingly formulated the policies. In all cases long term planning and prevention - " especially concerning the environment - played an important role.

ECONOMIC POLICY

The Netherlands view the North sea to be of significant benefit to social and economic advancement. Therefore, they base their economic policy on utilization of the North Sea as much as possible economically. The economic policy covers the following:

- 1) Off shore industry
- 2) Shipping
- 3) Fisheries
- 5) Extraction of sand and gravel
- 6) Generation of power

SPATIAL POLICY

The Netherlands Spatial policy for the North Sea is aimed at "harmonious attunement of user functions". For safety they restricted "mutual hindrances" and prevented where possible.

The spatial policy covers the following:

- 1) Shipping

- 2) Fisheries
- 3) Drilling operation
- 4) Recreation
- 5) Control of pollutant from land-based sources

ENVIRONMENTAL POLICY

The policy is to have "lasting preservation of ecological values of the North Sea."

It covers the following:

- 1) Shipping
- 2) Off shore industry
- 3) Pollutant from land based sources
- 4) Scientific Marine research

SOCIAL POLICY

It is intended to take care of the health, safety, welfare, cultural and scientific aspects.

It covers the following:

- 1) Labour
- 2) Recreation
- 3) Under water archeology
- 4) Safety of man at sea
- 5) Scientific marine research

ADMINISTRATIVE POLICY

The administrative policy is directed to have a balanced and efficient management of the North Sea especially in view of the multiplicity of factors involved. This refers to international agreements and national legislation, regulations and surveillance activities.

Therefore, the administrative policy aims at:

- 1) Democratic administration
- 2) Firm cooperation with other coastal States

2.4. HARMONIZATION OF THE NORTH SEA POLICY OF THE NETHERLANDS

The harmonization of North Sea policy of the Netherlands is directed toward achieving coordination among the numerous activities undertaken by different government departments. For coordination three instruments have been used in recent years which are:

- 1) A policy framework
- 2) An action programme
- 3) An Institutional framework

About the policy framework we have discussed in the preceding section, therefore we would have a look on the action programme and discuss the institutional framework in brief.

2.4.2 ACTION PROGRAMME FOR THE HARMONIZATION OF NORTH SEA POLICY OF THE NETHERLANDS

The actions in the programme have been allocated according to the concerned policy facets namely economic, spatial,

environmental, social/cultural, administrative/international. The action programme included only the actions having an interdepartmental character. For each action under the concerned policy facet one (in most cases) ministry is assigned as the "lead" agency while others are participating ones. For example under the economic facet for exploration of future developments in the North Sea the ministry of Transport and Public Works is to take the initiative in cooperation with the Secretariate of ICONA. In most cases the ministry of transport and public works plays the lead role. Depending on the policy facet and the action other ministries i.e min. of eco. affairs, min. of Housing, physical planning and Environment, ministry of education and science and ministry of foreign affairs also play the role of lead agency.

2.4.3 INSTITUTIONAL FRAMEWORK

The concerned institutional framework consists of three institutions:

- The North sea committee of public works council, to provide external advice;
- The interdepartmental coordinating committee for North Sea Affairs (ICONA), having an independent chairman,
- The ministerial coordinating committee for North Sea Affairs (MICONA).

The institutions receive a number of new instruments relating to policy preparation, operational implementation and information. Policy preparation consider the following:

- reviewing future developments in the use of the North Sea and clarifying interconnections;
- determining risks-probabilities and effects-of hindrance between users and effects on the environment;
- weighing up the various interests associated with uses of the sea and the state of environment.

However the public works department organized the "North Sea Management Analysis Project (MANS) for development of suitable instruments. Both for preparation and implementation of North Sea Policy effective information is of paramount importance; therefore, marine information service (MARIS) has been established. The role of the North Sea committee of the public works council as an external advisory body is also very important. Because the policy can accommodate the views outside the government.

Interagency coordination and operational cooperation is done systematically. A package of proposals prepared by the ICONA in early 1986 was adopted by the government. One of the Proposal was the establishment of the Netherlands Hydrography Institute (NHI) which brought all the state's hydrography activities together in a sort of federal form. This cooperation has been proven to be a useful instrument for harmonization, among others in the field of operational

cruising schedules, procurement of equipment, joint research and international presentation.

The new Coast Guard organization, set up in 1987 represents another form of operational cooperation relating to the provision of services and monitoring and detection of offences in the North Sea. All responsible agencies cooperate through the Coast Guard Organization.

Furthermore a permanent Interdepartmental consultative Committee on Sea going Vessels (IOZV) has been to advise on matters like the procurement and interdepartmental use of civil sea going vessel belonging to the state.

To conclude, it is worthwhile to comment that as per the continuum of policy integration the Dutch ocean management policy in general moved from harmonization to integration. Professor Miles holds the view that the Dutch could make it because their "parliament put the whole issue at the top of their national agenda". As has already been discussed the "institutional re-alignment" is also of vital importance, where they designated a lead agency instead of choosing centralised approach .

Moreover the examples of Coastal Zone Management Plan Voordelta and the environmental zone on the dutch Continental shelf established the fact of policy integration. With the practical experiences from the two

case studies now we move on to the next chapter for some recommendations and a conclusion.

C H A P T E R I V

RECOMMENDATIONS AND CONCLUSION

Having established the international mandates for integrated ocean management and sustainable development and having varified its theoretical as well as practical aspects it is expedient to put forward certain recommendations.

First of all rekommendations put forward for all countries, then for the developed countries in general and finally recommendations are made specifically for Bangladesh which may fit to other countries of similar background .

General Recommendations:

1. Recognize the fact of interdependence between the North and the South and pursue the policy of integration.
2. Identify the problem properly and also address the questions why is it a problem ? and how could it be solved ?
3. Recognize and incorporate the principles and objectives of sustainable development in the national policy especially in the ocean management policy.

4. Be a party to the UNCLOS III and join the international ocean management regime .

5. Be proactive and frame long range strategic planning .

6. Be prepared for unforeseen contingencies and develop contingency plans .

7. Enact legislations that facilitate integrated ocean management and ensure sustainable development.

8. Assign national priority to ocean .

9. Allocate the business among the ministries assigning the "lead agency" with proper authority associated with the responsibility.

10. Keeping the philanthropic view of sustainable development and the Rio slogan " Think globally and act locally "in mind the commitment to take care of "our common future " has to be materialised.

11. Establish holistic and multi-disciplinary approach.
for multi-disciplinary approach "talent hunting " programme is of great value i.e persons having expertise and experience in the respective discipline (Economics,

Management, Law, applied and pure science, archeology and so on) should be gathered together.

12. Try to incorporate the views of the opinion groups like Journalist, Environmentalist, Conservationist, NGOs and more importantly the views of the users group.

13. Conduct research to find alternative better way and put emphasis on training and education to attain and maintain certain standard.

General recommendations for the developed countries :

In addition to the general recommendations for all the countries having interest in ocean/coastal management, the developed countries should pursue the following :

1. Recognize the interdependence between the North and the South and try to be partner in developing "Our Common Future ";

The developing countries should not be viewed as perpetual recipients of aids and grants because it is not a one way traffic.

2. Taking the moral responsibility of Global environmental degradation (through emission etc.) they should come up with open hearted cooperative approach .

3. Recognise the fact that poverty is both cause and effect of environmental degradation in the developing world ; therefore, they should come up with concrete solutions to elimination of poverty (may be through increased project aids).

4. Avoid prescribing something sterio-type for simply it is in very much vogue. Whatever be the suggession and recommendations they must be compatible to the existing system of the countries concerned. For example the "panacia" like privatization and market mechanism does not work everywhere if imposed and imposed overnight as it is evident from the devastating effects in the economies of the East European countries.

5. As per the UNCLOS III fulfill the obligation of technology transfer especially that of marine technology .

6. Fulfill the Rio commitment to help build capacity of the developing countries .

7. Develop a sort of compensatory mechanism to help out those countries who take better care of the environment. It means priority should be given to those who pursue the policy of sustainable development.

8. Debt burden of the developing countries could be lessened or written off categorically from those countries pursuing the policy of sustainable development.

9. Exert influence over the World Bank, IMF and other financial institutions and donor agencies to change their attitude toward assisting the developing countries. For example the institutions and agencies should review their demand for "Structural Adjustment" like privatisation, shrinking of the public sector, removal of subsidies and so on.

10. Not by words but by deeds they should prove that the sustainable development concept is not an additional bluff to the developing countries.

They should take care of and make review of their pattern of production and consumption which are alleged to be unsustainable.

If they fail to remove the suspicion around the "hidden agenda" and to prove their sincerity the prospect of sustainable development will remain bleak. Rather the counter argument and proposal like the Malaysian Prime Minister directing against preserving tropical rain-forest and proposing for proportionate afforestation in the Developed countries may be the issue in the incoming days.

Apart from those general recommendations certain specific recommendations are made for Bangladesh which may fit to other developing countries.

Recommendation for Bangladesh:

I. Ratify UNCLOS III .

II. Assign priority to ocean management in the national policy plan .

III. Fulfil the commitment given in the Earth summit by incorporating the sustainable development principles and objective in the national policy .

IV. Form a high level commission to formulate policy for integrated ocean management and sustainable development. The proposed high level commission deserves elaboration here. The commission will consist of a chairman, a vice chairman, and several members. Therefore the commission is described below.

1. Chairman

The Commission will be chaired by the concerned minister. The chairmanship will be on rotational basis among the concerned ministers. The tenure of the chairman will be a maximum of one year period .

2. Vice chairmen

The cabinet secretary the senior most civil servant who enjoys the status of a deputy minister will ex-officio be the vice chairman of the commission.

3. Members

The following secretaries (permanent secretaries) in charge of different ministries and divisions would be the members of the commission :

- 1) Secretary, ministry of Environment and forest
- 2) Secretary, ministry of Fisheries and live stocks
- 3) Secretary, ministry of trade and commerce
- 4) Secretary, ministry of Agriculture
- 5) Secretary, ministry of Agriculture
- 6) Secretary, ministry of Energy, Peteroleum and
Mineral resources
- 7) Secretary, ministry of Civil aviation and Tourism
- 8) Secretary, Science and Technology Division
- 9) Secretary, ministry of Irrigation and water
resources
- 10) Secretary, ministry of defence .

4. Member Secretary to the Commission:

Having the advantages of expertise, experience (especially of Global View) and logistic supports the Secretary of

Shipping will ex-officio be the member secretary to the Commission. And naturally the Shipping Ministry will provide the secretarial support to the Commission.

5. Strategic planning staff :

There would be a group of experts from different discipline and from the mid and early senior level of civil service to form the strategic planning staff. The strategic planning staff will be working independently and on full time basis. They will help the chairman to form the strategic vision and goals. They will work with the vice chairman of the commission directly and they will interact with the member secretary also.

The Terms of Reference of the Commission.

1. As a matter of routine the Commission will meet bi-monthly.
2. The commission will be responsible for formulating policy for integrated ocean management and sustainable development. For that the commission will formulate policy framework, action programmes and will propose necessary institutional re-alignment.
3. It will oversee , monitor and evaluate the implementation of the policy concerned .
4. It will not interfere with the internal affaires (as per the allocation of business) of the ministries concerned.

6) It will keep close contact with the UN Commission on sustainable development and other related international fora especially regarding the latest development .

7) It will furnish annual progress report along with recommendations to the Prime Minister and to the Parliament.

V. Research, education and training programme:

Research should be conducted and directed to find out better alternative solutions. The level and standard of education and training should be maintained and up-graded to cope up with the world dynamics.

VI. Contingency plans :

There should be contingency planning at all levels namely

1. National
2. Regional
3. Organization specific- Ministry, Port, National Shipping Company, Oil refinery ,Tanker operating company and so on.
4. Local Government (esp. disaster preparedness plan)

VII. Regional Cooperation :

To play active role in the South Asian Association for Regional Cooperation (SAARC) to ensure the right of the land lock countries of the region namely Nepal And Bhutan as per

the UNCLOS III and in preparing joint emergency response plan for the region.

VIII. To manage the Bay of Bengal through extended regional cooperation :

Like the UNEP'S regional sea's programmes elsewhere the countries in the region namely India, Bangladesh, Burma and Thailand can form a cooperative regime of management of the Bay of Bengal. This may have the following outcomes :

- (1) Avoidance of conflicts regarding fishing
- (2) Resolution of Boundary disputes
- (3) Efficient search and rescue operation
- (4) Better preparedness for unforeseen contingencies like accident, oil spill etc. and for natural disasters (i.e hurricane, typhoon and tidal surge).

IX) The government should go for necessary legislations like the "Natural resources conservation act" and the "Natural resources conservation authorities act" of Jamaica.

CONCLUSION

The great potential for a prosperous future lies in the observation that Man is both Creator and Moulder of his environment.

The future is not that uncertain as is viewed by many. We can well foresee the future ahead of us it means we can take care of "our common future" quite consciously.

Sustainable development concept is so global in ambit that its translation into reality is the task of the world community as a whole.

It has been established in the Earth Summit that there are at least two essential ingredients of sustainable development namely interdependence between the North and the South, and integrated approach.

In the global perspective the European Union, the North American Trade Agreement etc. are the positive move toward integration hence sustainable development.

While there are positive signs and hopes for sustainable development, there are other signs of dispairs as well; categorically, when we view situation in Bosnia, Somalia and elsewhere which reveals the reality of how long the world community needs to go for achieving sustainable development.

We hope good sense will prevail and as the human civilization has been advancing on its way, we shall protect

our common future. Hopefully the twenty first century will be the era of integration and sustainable development. Given the global signs of hopes and dispairs we must not sit idle, we have specific obligations and commitments to fulfil. Categorically mentioning we should implement the Rio recommendation of agenda 21 chapter 17 through policy integration.

We must not remain indifferent or callous in not minding which way we move. Being success seeker we should accept the challenge of sustainable development and turn the threat if there any into opportunities.

Eventually we should resort to an acceptable equilibrium situation between development and environment and thereby protect our respective national interest.

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