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Convention on Cooperation for the Protection,
Management and Development of the Marine
Environment and Coastal Areas of the West,
Central and Southern African Region (Abidjan Convention)

Abidjan, Côte d'Ivoire, 27 to 31 March 2017

ADDITIONAL PROTOCOL TO THE ABIDJAN CONVENTION ON INTEGRATED COASTAL ZONE MANAGEMENT

Preamble

The Contracting Parties to this Protocol,

Being Parties to the Convention for Cooperation in the Protection, Management and Development of the Marine and Coastal Environment of the West, Central and Southern Africa Region, adopted in Abidjan on the 23rd of March 1981, and its amendments;

Considering that the coastal areas of the Abidjan Convention area constitute the peoples' common natural and cultural heritage to be preserved and judiciously used for the benefit of the present and future generations,

Concerned about the increase in human pressure on the coastal areas of the West, Central and Southern Africa region, which threatens their fragile nature;

Willing to stop and reverse the degradation process of those areas while significantly reducing the loss of biodiversity of the marine and coastal ecosystems;

Worried about the risks threatening the coastal areas due to climate change, which could, among other things, result in a rise in sea level;

Aware of the need to adopt sustainable measures to adapt and/or reduce the negative effects of natural phenomena;

Convinced that the coastal areas are an irreplaceable ecological, economic and social resource, a specific integrated approach is required as to their development and management with a view to conservation and sustainable development, taking into account their diversity and, in particular, the specific needs of islands with respect to geomorphological characteristics;

Recognizing the principles that apply to integrated coastal zone management, such as equity, justice, good governance, the right to information and participation, the right of access to coastal resources and other marine resources, regional cooperation, especially regarding transboundary environmental issues, the "polluter-pays" principle, the precautionary principle, the ecosystem management principle, conservation of the biological diversity, control and monitoring as well as environmental impact assessments;

Further recognizing the significant role of the basin organizations in the Abidjan Convention area, the African Network of Basin Organizations and the International Network of Basin Organizations,

Considering the 1971 Ramsar Convention on Wetlands of International Importance, as amended, the 1972 Convention for the Protection of the World Cultural and Natural Heritage, the 1973 International Convention for the Prevention of Pollution by Ships, as modified by its 1978 Protocol (MARPOL 73/78), the 1982 United Nations Convention on the Law of the Sea, particularly its Part XII, the 1992 Convention on Biological Diversity and especially the related coastal and marine programme, the 1992 United Nations Framework Convention on Climate Change (UNFCCC) and the 2015 Paris Agreement on Climate Change, the 1994 United Nations Convention on the Fight Against Desertification, the 2008 Protocol on Integrated Coastal Zone Management in the Mediterranean to the 1995 Barcelona Convention for the Protection of the Marine Environment and the Coastal Region of the Mediterranean, the Sustainable Development Goals, the outcome document of the 2012 United Nations Conference on Sustainable Development, entitled, "The Future we want", and the outcome document of the 1994 United Nations Global Conference on the Sustainable Development of the Small Island Developing States entitled "Barbados Programme of Action for the Sustainable Development of Small Island States" and the ensuing 2005 Mauritius Strategy for the Further Implementation of the Programme of Action for the Sustainable Development of Small Island Developing States and the adopted in 2015 Agenda 2063: "The Africa we want";

Mindful of strengthening cooperative action to develop appropriate and integrated plans for coastal zone management pursuant to Article 4, paragraph 1-e, of the 1992 UNFCCC;

Building on existing experience of integrated coastal zone management and the work of various international and regional organizations, and of the sub-regional African organizations.

Determined to strengthen at the regional level the efforts made by coastal States towards integrated coastal zone management, particularly the 2050 Integrated Maritime Strategy developed by the African Union (AIM Strategy) and the Master Plan for Coastal Development initiated by the West African Economic and Monetary Union (WAEMU) within the framework of the 2011 Dakar Declaration establishing a West African Observatory for the Reduction of Coastal Risks and the Impacts of Coastal Erosion and its amendments;

Committed to boosting regional, national and local initiatives through a coordinated action of promotion, cooperation and partnership with the various actors/stakeholders particularly concerned so as to foster efficient governance in the service of integrated coastal and marine zone management;

Resolved to develop and strengthen their current legal, institutional, administrative and technical capacities of the and to mobilize financial resources for a smooth implementation of integrated coastal zone management;

Resolved to put in place strategies to mobilize and promote science and technology in the marine and coastal field as well as their transfer;

Recognizing the capital role of the Blue Economy in their socio-economic development;

Conscious of the need to conserve their marine and coastal environment of the Contracting Parties through stricter legislation and regulations, and involving the Social responsibility of the Organizations;

Wishing to ensure that the integrated coastal zone management is effective,

Have agreed as follows:

PART I: GENERAL PROVISIONS

Article 1: GENERAL OBLIGATIONS

In accordance with the 11th Conference of Parties of the Abidjan Convention, decision CP.10/13, the Parties shall establish a common framework for integrated coastal zone management and shall take the necessary steps to strengthen regional cooperation to this end.

Article 2: DEFINITIONS

For the purpose of this Protocol:

- a) "Risk" means the combination of hazard and vulnerability (or issue). A "hazard" is any manifestation of a potential, natural or man-induced, phenomenon, while "vulnerability" relates to the fragility of a socio-economic or political system in relation to that hazard. When the issue is human and the phenomenon is natural, the risk is considered natural. When both the issue and the phenomenon are of human origin, the risk is considered anthropic. It can also become a technological risk. When the issue is natural and the phenomenon is of human origin, the risk is an ecological disaster.
- b) Ecological management: any structural or nonstructural intervention carried out under environmental stress. These are actions (such as constructions, facilities, arrangements, organization or layouts) designed or conducted to better take into account the sanctity of environments and the integrity of species by identifying (i) the impacts of human activities on natural environments, and (ii) options to reduce or offset adverse effects.
- c) "Parties" means the Contracting Parties to the present Protocol;
- d) "Convention" means the Convention for Cooperation in the Protection and Development of the Marine and Coastal Environment of the West, Central and Southern Africa Region, signed in Abidjan on 23 March 1981, as amended on 10 June 1995;
- e) "Organization" means the organization referred to in article 16 of the Convention;
- f) "Coastal zone" refers to the geomorphological area on either side of the seashore in which the seaward side and the landward side interact through complex ecological and resource systems, including biotic and abiotic components, coexisting and interacting with human communities and relevant socio-economic activities;
- g) "Integrated Coastal Zone Management" means a dynamic process of sustainable management and use of coastal areas, taking simultaneously into consideration the fragility of the coastal ecosystems and landscapes, the diversity of activities and uses, their interactions, the maritime vocation of some of them, and their impact on both the marine part and the land;
- h) "Integrated Coastal area and River Basins Management" (ICRBM) means the adoption of guidelines, objectives and policies and the establishment of management mechanisms that take into account the interrelations between the two systems (river basins and coastal areas) in order to ensure environmental protection and socio-economic development. The main features of ICRBM are as follows:
 - i. Sustainable production of goods and services required for the production of these goods. It relates to the watershed and adjacent littoral areas, and takes into consideration the ecological, economic, social and cultural aspects of that area at different management levels.
 - ii. The existence of a consistent set of strategic, tactical and operational activities, using technical and management tools to achieve its goals.
 - iii. Action-oriented, continuous, adaptable over time, and participatory, involving public and

private stakeholders”.

Article 3: GEOGRAPHICAL SCOPE

1. The present Protocol shall apply to the coastal zone of the Parties as defined under national legislation, which may include the following areas:

- a) littoral areas
- b) river basins
- c) inland waters
- d) the territorial sea
- e) the exclusive economic zone
- f) the continental shelf under the jurisdiction of the States Parties to the Abidjan Convention.

2. Each Party shall adopt or promote the adoption of appropriate measures at the appropriate institutional level, to inform the public and stakeholders of the geographical scope of this Protocol.

Article 4: RESERVATION OF RIGHTS

1. No provision of this Protocol nor any act adopted under this Protocol shall prejudice the rights, claims or current or future legal views of any Party relating to the law of the sea, in particular the nature and extent of marine areas, the delineation of these areas between adjacent States or States that face each other, the right and modalities of passage through straits used for international navigation and the right of innocent passage through the territorial sea as well as the nature and extent of the jurisdiction of the coastal State, the flag State and the port State.

2. No act or activity under this Protocol shall constitute grounds for claiming, contending or disputing any claim to national sovereignty or jurisdiction.

3. The provisions of this Protocol shall be without prejudice to the stricter provisions for the protection and management of the coastal zone specified in other existing or future national or international instruments and programmes.

4 Nothing in this Protocol shall prejudice national security and defense activities and facilities. However, each Party agrees that such activities and facilities should be implemented or established in a manner that is compatible with this Protocol.

Article 5: OBJECTIVES OF INTEGRATED COASTAL ZONE MANAGEMENT

The objectives of integrated coastal zone management are to:

- 1) Promote integrated planning and coordinated development of the coastal zone including insular belts and river basins;
- 2) Maintain the integrity of insular belts, coastlines and river basins for the benefit of present and future generations;
- 3) Ensure sustainable use of natural resources and ecosystems services including freshwater ecosystems
- 4) Promote and maintain ecosystem resilience, including appropriate protection of sensitive areas, in the face of human activities, natural hazards and climate change
- 5) Prevent and reduce pollution from air, land and sea based sources

Article 6: GENERAL PRINCIPLES FOR IMPLEMENTING OF INTEGRATED COASTAL ZONE MANAGEMENT

In the implementation of the provisions of this Protocol, the Parties shall be guided by the following principles of integrated coastal zone management:

- 1) The principle of complementarity and the interdependence between the marine area, coastline, estuaries, floodplains, riverbeds and watersheds;
- 2) The principle of integrated planning for sustainable coastal development, including socioeconomic activities;
- 3) The principle of coordination across sectors and levels of governance;
- 4) The principle of respecting the finite carrying capacity of ecosystems in the coastal zone;
- 5) The principles of (a) assessing and mitigating risk; (b) preventing damage to the environment and (c) appropriate restoration;
- 6) The principle of participation and transparency in the decision-making process;
- 7) The principle of priority to public access and public services to the sea.

Article 7: COORDINATION

1. For the purposes of integrated coastal zone management, the Parties shall:

- a) ensure institutional coordination, where necessary through appropriate entities or mechanisms so as to avoid sectoral approaches and facilitate integrated approaches;
- b) organize appropriate coordination between the various competent authorities for the maritime and landward sides of the coastal zones in the different administrative services, at the regional, sub-regional, national and local levels,
- c) organize between regional and sub-regional bodies, national and local authorities in the area of legislation and regulations, policies and strategies, coastal plans and programmes and, with regard to the various authorizations of activities, the close coordination that can result from joint consultative bodies or joint decision-making procedures.

2. The competent regional, sub-regional, national and local authorities of the coastal areas shall, wherever possible, work together to consolidate the effectiveness of the coastal management strategies, plans and programmes that are put in place.

PART II ELEMENTS OF INTEGRATED COASTAL ZONE MANAGEMENT

Article 8: INTEGRATED WATER RESOURCES MANAGEMENT

1. Pursuant to Annex 1 of this Protocol, when exploiting water resources that are considered common natural resources, the Parties should observe the principles of integrated water resources management, including ecosystem management and the conservation of biodiversity.
2. They shall promote for this purpose, through a rational planning of resources, the requirements of ecological management of water resources with those of sustainable development and ensure the harmonization of laws and consistency between public and private initiatives and between all decisions made by public authorities at the regional, sub-regional, national and local levels that impact on the use of water resources.

Article 9: AN APPROACH FOCUSING ON WATERSHEDS AND COASTAL ZONES

For the management and exploitation of watershed and coastal zones, the Parties will draw on the management principles already developed by the competent international bodies and instruments, to which they are parties particularly the basin organizations in the Abidjan Convention area, the African Network of Basin Organizations and the International Network of Basin Organizations, as well as the 1997 Convention on the Law on Non-Navigational Uses of International Waterways of 1997 and the proceedings of the United Nations International Law Commission on international watercourses.

Article 10: MANAGEMENT OF THE COASTAL ZONES

1. The Parties must, in view of the changing patterns of environmental phenomena, continually make adjustments, mainstreaming their coastal zone development activities into a perspective of integrated management focusing on the development of the legal, institutional, environmental, socio-economic and cultural dimensions. The development of the coastal zones and modifications to the coast must be subject to appropriate control, surveillance, monitoring and evaluation.
2. The Parties shall capitalize on lessons learned through monitoring and evaluation in order to adapt to environmental phenomena and their effects on natural resources.
3. The Parties shall pay special attention to extreme weather and climatic events whose intensity will increase with climate change.
4. The Parties shall also take steps to develop early warning systems that will be integrated into regional and national policies and strategies, plans and programmes focusing on adaptation to climate change.

Article 11: CONSERVATION AND REHABILITATION OF ECOSYSTEMS

1. The Parties shall ensure the effective enforcement of laws and regulations that they adopt and ensure the maintenance of healthy ecosystems, and restoration and rehabilitation of degraded ecosystems.
2. The Parties shall take measures aimed at building the capacities of stakeholders on the identification of degraded ecosystems, biodiversity and coastal landscapes and the use of appropriate technologies in coastline management, enhancement of reclamation and rehabilitation techniques of degraded coastal zones, as well as the mounting of transboundary reclamation and rehabilitation programmes.
3. The Parties shall ensure good management of benefits from the conservation and rehabilitation of ecosystems.
4. The Parties shall, through consultation, take the concerns of neighboring countries into account

in the development and implementation of activities with potential transboundary negative impacts.

Article 12: PROTECTION AND SUSTAINABLE USE OF THE COASTAL ZONE

1. In accordance with annex 6 of this protocol and pursuant to the principles and objectives set out in articles 5 6, 8 and 11 of this Protocol, the Parties shall ensure that coastal areas are used and managed sustainably so as to conserve biodiversity, natural habitats, landscapes, natural resources and coastal ecosystems, in line with national, regional and international legal instruments.

2. To this end, the Parties shall take guidance from the general recommendations set out in Annex 2 and the recommendations for specific areas set out in Annex 3 to this Protocol;

3. Each Contracting Party shall adopt legal, institutional, administrative and planning instruments to implement the Protocol and the related National ICZM Framework, taking into account the principles set out under Article 6. These instruments may include environmental assessments, zoning and spatial planning, sensitivity mapping and vulnerability assessment, coastal setback lines, monitoring and evaluation, ecosystem valuation, coastal strategy, plans and programme, marine and coastal protected areas, disaster risk reduction.

Article 13: SOCIO-ECONOMIC ACTIVITIES

1. In accordance with the principles and objectives set out in Articles 5 6, 8 and 11 of this Protocol and in line with the relevant provisions of the Abidjan Convention and its protocols, the Parties shall:

- a) pay special attention to the socio-economic activities that require proximity to the sea;
- b) ensure that in the various economic activities, natural resources are used sustainably and the needs of future generations are taken into account;
- c) comply with integrated water resources management and environmentally sound waste management methods;
- d) ensure that the coastal and maritime economy is adapted to the often-fragile nature of the coastal zones while ensuring the protection of marine resources against pollution;
- e) define development indicators for economic activities in order to ensure sustainable use of coastal zones and reduce pressures that exceed the carrying capacity thereof;
- f) foster the use of codes of conduct among public authorities, economic actors and non-governmental organizations.
- g) work in collaboration with other Contracting Parties to contain disasters.

2. With regard to the economic and socio-economic activities below, the Parties shall further take guidance from the sector-specific recommendations set out in Annex 4.

Article 14: COASTAL LANDSCAPES

1. The Parties recognizing the special aesthetic, natural and cultural value of the coastal landscapes, independently of their classification as protected areas, shall adopt measures to ensure the protection of coastal landscapes through legislation, planning and management.

2. The Parties shall promote regional, sub-regional, national and local cooperation in the field of landscape protection, and, in particular, the implementation, where applicable, of joint action in favour of protecting transboundary coastal landscapes.

Article 15: ISLANDS AND ARCHIPELAGOS

The Parties shall ensure special protection for islands, including small islands, and for this purpose:

a) shall encourage environmentally friendly activities in these areas, and take special measures to make sure island communities participate in the protection of coastal ecosystems based on their habits and local know-how;

b) shall consider the specificity of the island environment, especially in the context of climate change and the need to ensure interactions among islands in legislation and regulations, policies and strategies, coastal plans and programmes, as well as management instruments, particularly in the fields of transport, tourism, fishing, waste and water.

Article 16: CULTURAL HERITAGE

1. The Parties shall adopt, individually or collectively, all appropriate measures to preserve and protect the cultural heritage of the coastal zone, notably the archaeological and historical heritage, including underwater cultural, in accordance with the applicable national and international instruments.

2. The Parties shall ensure that in-situ conservation of the cultural heritage of the coastal zones is considered as the priority, before any intervention is undertaken in this heritage.

3. The Parties shall ensure in particular that elements of the underwater cultural heritage of coastal areas removed from the marine environment are conserved and managed in such a way as to ensure their long-term conservation, and are not subject to sale, purchase or barter operations as commercial goods.

Article 17: INFORMATION, PARTICIPATION AND ACCESS TO JUSTICE

1. Parties shall take necessary measures to ensure that, in issuing the various authorizations, during the phases of development and implementation of coastal and marine policies, strategies, plans, programmes and projects, there is appropriate involvement, without an interest having to be stated, of the various stakeholders, including:

- a) the local government bodies and public entities concerned;
- b) economic operators;
- c) civil society organizations;
- d) Community-based organizations
- e) The general public, irrespective of whether they may be directly affected or not.

Such participation shall involve *inter alia* consultative bodies, investigations or public hearings, and may extend to partnerships.

2. To ensure participation, the Parties shall provide stakeholders with information in a timely, adequate and effective.

3. Mediation or conciliation procedures and the right of administrative or legal recourse shall be made available to any stakeholder challenging the decisions, acts or omissions subject to the provisions established by the Parties on participation regarding plans, programmes or projects concerning the coastal zone.

Article 18: AWARENESS, TRAINING, EDUCATION AND COMMUNICATION

1. The Parties shall undertake awareness-raising and advocacy activities, at the zonal, local, national, subregional/regional levels, on integrated coastal zone management and to promote the development of educational programmes, training activities and public education on the subject. Combined programmes shall be encouraged between the Parties.

2. The Parties shall organize, directly, bilaterally or multilaterally, or with the assistance of the regional, sub-regional and international organizations concerned, educational programmes and training activities as well as public education on integrated coastal zone management to ensure sustainable development.

Article 19: RESEARCH AND TECHNOLOGY TRANSFER

The Parties shall plan and undertake multidisciplinary scientific research on integrated coastal zone management and on the interaction between activities and their impacts on coastal zones. To this end, they shall strengthen the specialized research centers or create new ones where needed. The purpose of the research shall be, in particular, to further knowledge on integrated management applicable to coastal zones, to contribute to public information and to facilitate decision-making.

PART III: INSTRUMENTS OF INTEGRATED COASTAL ZONE MANAGEMENT

Article 20: MONITORING AND OBSERVATION MECHANISMS AND NETWORKS

1. The Parties shall use and strengthen the existing appropriate mechanisms for monitoring and observation or establish new ones where necessary. They shall prepare and regularly update national reports on the state of the marine and coastal environment.
2. In order to promote the collection and exchange of scientific experience, data and good practices, the Parties shall participate at the appropriate administrative and scientific levels, in a national, regional or sub-regional network of coastal zones, in collaboration with the Organization.
3. In order to facilitate regular observation of the state and evolution of coastal zones, the Parties shall develop approved guidelines and procedures to collect appropriate data for national inventories.
4. The Parties shall provide a shared data infrastructure for integrated coastal zone management and the integration of different types of data together with the institutional separation of responsibilities concerning coastal areas at the regional, national and local levels.
5. The Parties shall take all steps necessary to facilitate public access to information derived from the monitoring and observation mechanisms.

Article 21: STRATEGY FOR INTEGRATED COASTAL ZONE MANAGEMENT

The Parties shall endeavor to cooperate in the promotion of sustainable development and integrated coastal zone management. The Parties shall define a common regional framework for integrated coastal zone management to be implemented through appropriate regional and sub-regional action plans and other operational instruments, as well as through their national strategies.

Article 22: NATIONAL POLICIES AND STRATEGIES, COASTAL ZONE MANAGEMENT PLANS AND PROGRAMMES

1. Each Party shall strengthen or develop an integrated national management policy or strategy, as well as coastal implementation plans and programmes, in line with the common regional framework that shall be in tune with the objectives and principles of integrated management of this Protocol, and shall inform the Organization of the coordination mechanism put in place for this strategy.
2. The national strategy, based on the analysis of the existing situation, shall set objectives, determine priorities, stating the reasons upon which they are based, identify coastal ecosystems that need management, as well as all the actors and processes involved. It shall list the measures to be taken and their cost as well as the institutional instruments, legal and financial means available, and shall set an implementation schedule.
3. The coastal plans and programmes, whatever their nature, shall take into consideration the guidelines of national strategy and implement them at the appropriate territorial level, determining, inter alia and as needed, the carrying capacity, conditions of allocation and use of the respective marine and landward sides of the coastal zones.
4. The Parties shall define appropriate shared indicators to assess the effectiveness of the integrated coastal zones management policies or strategies, plans and programmes as well as the progress in the implementation of the Protocol.

Article 23: ENVIRONMENTAL ASSESSMENTS

1. in accordance with annex 7 of this protocol, Parties shall conduct a strategic environmental assessment of the policies, strategies, plans and programmes concerning the development of coastal zones or likely

to affect them as early as possible in the decision-making procedure and before the final decision on their authorization is issued.

2. The Parties shall ensure that the environmental impact assessments of public and private projects that may have significant effects and impact on the environment are conducted with due consideration for the requirements and principles of integrated management of coastal zones and of vulnerabilities, as early as possible in the decision-making procedure and before the final decision on their authorization is issued

Article 24: LAND POLICY

1. In order to promote integrated coastal zone management, reduce economic pressures, maintain open areas and allow public access to the sea and along the shores, the Parties shall adopt appropriate land-policy instruments and measures, including in the planning and urban development process.

2. To this effect, and in order to ensure sustainable management of public and private land in the coastal zones, the Parties may *inter alia* adopt mechanisms for the acquisition, assignment, donation or transfer of land to the public domain and institute easements on properties.

Article 25: ECONOMIC, FINANCIAL AND FISCAL INSTRUMENTS

To implement national legislations and regulations, policies and strategies, plans and programmes, the Parties may take appropriate measures to adopt relevant economic, financial and/or fiscal instruments aimed at supporting regional, sub-regional, national and local initiatives related to integrated coastal zone management.

PART IV: RISKS AFFECTING COASTAL ZONES

Article 26: DEFORESTATION AND MISCELLANEOUS CONVERSIONS

The Parties, in exercising their rights to exploit the natural resources of the coastal zones within their jurisdiction, including mangrove stands, shall, in deforested areas or in areas that have been converted to other purposes, systematically establish reforestation and bush fallow programmes within or outside the said areas, in particular in natural regeneration zones.

Article 27: POLLUTION

1. According to national legislation and in accordance with Annex 5 of this protocol (risks that may affect the coastal zone) the Parties shall take measures to become Parties to relevant international treaties on the protection of the continental, marine and coastal environment from pollution and ensure enforcement.
2. The Parties, through legal and institutional arrangements shall prevent, control, reduce or eliminate all forms of pollution that may affect the coastal zones by adopting relevant legislation and implementing regulations, as needed.
3. In the event of transboundary pollution, the Parties concerned shall take all measures necessary to control such pollution. If needed, they shall seek the assistance of the Organization for any pollution clean-up and rehabilitation support.

Article 28: INFRASTRUCTURAL DEVELOPMENT

1. The Parties shall undertake to include infrastructural development into a land management and land-use policy, where they take into account both the safety of users and the conservation of the marine and coastal heritage, in line with sustainable development, to prevent loss and damage.
2. Before undertaking any construction works in coastal zone areas, especially ports, dams, dykes, roads and bridges, the Parties shall ensure that such projects have been subjected to environmental impact assessment administrative procedure and that the outcomes and recommendations are in line with the mode of operation of the coastal zone.

Article 29: EXTREME CLIMATIC EVENTS

1. The Parties shall develop policies to mitigate potential impacts of natural hazards. To this end, they shall conduct regular assessments of vulnerability for the coastal zones, and take prevention, mitigation and adaptation measures to cope with the effects and impact of natural disasters as well as those linked to climate change.
2. Party shall integrate climate change adaptation and mitigation measures into all ICZM frameworks. In this regard, the Contracting Parties shall:
 - a) take into account all climate change-induced risks the coastal zone faces such as, sea level rise, increase in frequency or intensity of extreme weather events, ocean acidification, and their related consequences on ecosystems and coastal populations;
 - b) ensure that policies contribute to building resilience of coastal and marine ecosystems, economies and populations to climate change and variability; and
 - c) Cooperate to ensure that where there are transboundary dimensions of climate change and variability, collective regional interventions are made.
3. Each Contracting Party shall seek increased consultation and coordination between government sectors and non-state actors competent in coastal and marine and climate issues to allow for the elaboration and implementation of relevant climate change and variability adaptation and mitigation measures and

strategies at national and multilateral levels.

4. Each Contracting Party shall develop and reinforce scientific and technical knowledge and include indigenous and traditional knowledge on climate change and variability, its impacts and response strategies, and shall cooperate for this purpose with other Contracting Parties.

5. Each Contracting Party shall ensure that public decisions and measures related to climate change and variability adaptation are sustainable and should not increase the pressures on the coastal and marine environment, its resources and services.

6. Each Contracting Party shall also ensure that financial instruments and resources related to climate change and variability adaptation synergize with the implementation of ICZM at national and regional levels. "

Article 30: COASTAL EROSION

1. Pursuant to the objectives and principles laid down in articles 5 and 6 of this Protocol, the Parties shall, as a means of better preventing and mitigating the negative impact of coastal erosion, undertake to adopt the necessary steps to maintain or restore the natural capacity of the coast to adapt to changes.

2. When considering whether to undertake new activities and works in the coastal zone and watersheds, including marine works and coastal defense works, the Parties shall take particular account of their negative effects. Regarding existing activities and structures, the Parties shall adopt measures to minimize the effects of coastal erosion.

3. The Parties shall endeavor to anticipate the impacts of coastal erosion through the integrated management of activities, including adoption of special measures for sediments and works.

4. The Parties shall undertake to share scientific data likely to improve knowledge of the state, development and impacts of coastal erosion.

PART V: INTERNATIONAL COOPERATION

Article 31: NATURAL DISASTERS MANAGEMENT

1. The Parties shall undertake to promote international cooperation for managing disasters and to take all necessary steps to address their effects in a timely manner.
2. The Parties shall undertake to coordinate the use of equipment for detection, warning and communication at their disposal, making use of existing mechanisms and initiatives, to ensure in the shortest possible time, transmission of urgent information concerning major natural disasters. The Parties shall notify the Organization through their competent national bodies authorized to issue and receive such information in the context of relevant international mechanisms.
3. The Parties shall promote cooperation among themselves and between regional, sub-regional, national and local bodies, as well as regional non-governmental organizations and other relevant organizations in order to provide urgent assistance to deal with natural disasters affecting the coastal zones as defined under this Protocol.

Article 32: TRAINING AND RESEARCH

1. The Parties shall undertake, directly or with the assistance of the Organization or the competent international organizations, to cooperate in the training of scientific, technical and administrative staff in the field of integrated coastal zone management, particularly with a view to:
 - a) identifying needs and strengthening capacities;
 - b) developing scientific resources and research techniques;
 - c) promoting the creation of specialized centers in integrated coastal zone management;
 - d) promoting networking of these research centers;
 - e) encouraging training programmes for local professionals;
2. The Parties shall undertake, directly or through competent international organizations, to promote scientific and technical research on integrated coastal zone management, particularly through the exchange of scientific and technical information and by coordinating their research programmes on themes of common interest.

Article 33: SCIENTIFIC AND TECHNICAL ASSISTANCE

For the purpose of integrated coastal zone management, the Parties shall undertake, directly or with the assistance of the Organization or competent international organizations, to cooperate in providing scientific and technical assistance, including access to environmentally sound technologies and their transfer, and other possible forms of assistance to Parties upon request.

Article 34: EXCHANGE OF INFORMATION AND ACTIVITIES OF COMMON INTEREST

1. The Parties shall undertake, directly or with the assistance of the Organization or competent international organizations to cooperate in exchanging relevant information on the use of the best environmental practices.
2. In particular, the Parties, with the support of the Organization, shall:
 - a) define coastal management indicators, taking into account the existing ones, and cooperate in their use;
 - b) establish and maintain up-to-date assessments of the use and management of coastal zones;
 - c) carry out activities of common interest, such as demonstration projects on integrated coastal zone management.

Article 35: TRANBOUNDARY COOPERATION

The Parties shall, directly or with the assistance of the Organization or competent international organizations, bilaterally or multilaterally, endeavor to coordinate and/or harmonize, where appropriate, their policies and strategies, their national coastal plans and programmes regarding transboundary zones. The national administrative bodies concerned shall be charged with such coordination.

Article 36: TRANSBOUNDARY ENVIRONMENTAL ASSESSMENTS

1. Within the framework of this Protocol the Parties, before authorizing or approving plans, programmes and projects likely to cause serious harm to the coastal zones, shall cooperate among themselves through notification, exchange of information and consultation, in assessing the environmental impact of such projects, plans and programmes, having in mind article 23 of this Protocol and Article 4 of the Convention.
2. To this end, the Parties undertake to cooperate in developing and adopting appropriate guidelines for the determination of procedures for notifications, exchange of information and consultation at all stages of the process.
3. The Parties may, if appropriate, adopt bilateral or multilateral agreements to give full effect to this article.

PART VI: INSTITUTIONAL PROVISIONS

Article 37: NATIONAL FOCAL POINTS

Each Party shall appoint a national focal point, if possible the same as for the Convention, to coordinate national efforts and lead an inter-disciplinary group of national experts for the implementation of this Protocol and to liaise with the Organization regarding technical and programmatic aspects. If different from the Convention focal point, the Protocol focal point shall periodically provide the Convention national focal point with reports on the progress of programme and activities at the national level for the implementation of this Protocol. The Convention national focal point shall liaise between the Party and the secretariat.

Article 38: REPORTS

Pursuant to article 22 of the Convention, the Parties shall submit periodic reports to the Organization on measures taken for the implementation of this Protocol. The form and frequency of these reports shall be determined at the meetings of the Contracting Parties. The national focal points of the Convention shall be informed by the focal points of this Protocol, if they are not the same, and coordinate the delivery of national periodic reports required under this article. The Organization shall circulate the reports received under this article to all Contracting Parties.

Article 39: SECRETARIAT AND COORDINATION MECHANISMS

1. In accordance with article 16 of the Convention, the Parties shall nominate the Organization to coordinate the implementation of this Protocol and provide the following functions of a secretariat:

- a) assist the Parties in defining a common regional framework for integrated coastal zone management pursuant to article 21;
- b) prepare regularly a periodic report on the state and development of integrated coastal zone management for smooth implementation of this Protocol;
- c) exchange information and carry out activities of common interest pursuant to article 34;
- d) upon request, assist the Parties to:
 - (i) participate in a regional or sub-regional coastal zone network pursuant to article 20;
 - (ii) prepare and implement their national strategies for integrated coastal zone management pursuant to article 22;
 - (iii) cooperate in training activities, scientific and technical research programmes pursuant to Article 32;
 - (iv) coordinate, when appropriate, the management of transboundary coastal zones, pursuant to Article 35;
 - (v) organize meetings of the focal points, pursuant to article 37;
 - (vi) perform any other duties as assigned by the Parties.

2. For the purposes of this Protocol, the Parties and the Organization may jointly establish cooperation with civil society organizations whose activities are related to the Protocol.

Article 40: MEETINGS OF THE PARTIES

1. The ordinary meetings of the Parties to this Protocol shall be held back-to-back with or in conjunction with the regular meetings of the Contracting Parties to the Convention, pursuant to Article 17 of the

Convention. The Parties may also hold extraordinary meetings in accordance with Article 17, paragraph 1, of the Convention.

2. Meetings of the Parties to this Protocol shall be aimed at:

- a) monitoring the implementation of this Protocol;
- b) ensuring that the Protocol is implemented in coordination and synergy with the other protocols to the Convention;
- c) supervising the work of the Organization relating to the implementation of this Protocol and providing guidance for its activities;
- d) reviewing the effectiveness of the measures adopted for integrated coastal zone management and the need for additional measures, particularly in the form of annexes or amendments to this Protocol;
- e) making recommendations to the Parties on measures to be taken to implement this Protocol;
- f) reviewing the proposals made by the meetings of the focal points pursuant to article 37 of this Protocol;
- g) considering the reports submitted by the Parties and adopting the relevant recommendations pursuant to Article 38 of this Protocol;
- h) considering, where appropriate, any other matter related to this Protocol.

Article 41: FINANCIAL MECHANISMS

1. The Parties shall, while taking into account the need to provide adequate financial resources for the implementation of the Protocol, provide and mobilize additional funds and other forms of assistance for the activities related to the Protocol. These funds and assistance may include voluntary contributions, grants and loans on concessional terms provided by national and international sources, donor agencies, non-governmental sources, bilateral and multilateral funding sources, individuals, public and private sector entities, in addition to contributions and statutory obligations referred to in article 21 of the Convention.

2. The Parties shall encourage and facilitate the mobilization of adequate and predictable financial resources, especially through national budgetary allocations or specific funding such as environmental tax (ecotax), contributions by operators, or voluntary contributions for the implementation of this Protocol.

PART VII: FINAL PROVISIONS

Article 42: SANCTIONS

Following article 23 of the Convention on compliance control, the Parties shall also lay down rules on sanctions applicable in the event on non-fulfilment of obligations under this Protocol and the national legislation enforcing this Protocol and take all necessary measures to ensure they are enforced.

Article 43: RELATION TO THE CONVENTION

1. The provisions of the Convention relating to any Protocol shall apply to this Protocol.
2. The rules of procedure and financial rules adopted pursuant to article 21 of the Convention shall apply to this Protocol, unless the Parties to this Protocol agree otherwise.

Article 44: RELATIONS WITH THIRD PARTIES

1. The Contracting Parties may invite other States not party to this Protocol, as well as non-State parties such as international, intergovernmental and non-governmental organizations, to cooperate in the implementation of this Protocol.
2. Each Contracting Party shall adopt appropriate measures in compliance with the rules of international law to ensure that nobody shall undertake within the limits of the national jurisdiction, activities that are contrary to the objectives, principles and goals of this Protocol.

Article 45: FINAL CLAUSE

1. This Protocol shall open at, on ... for signature by Contracting Parties to the Convention.
2. The provisions of Articles 27 and 28 of the Convention on ratification, acceptance, approval and accession shall apply *mutatis mutandis* to this Protocol.
3. The provisions of Articles 29, 30 and 31 of the Convention concerning entry into force, withdrawal and the responsibilities of the depositary shall apply *mutatis mutandis* to this Protocol and its Annexes.

IN WITNESS WHEREOF the undersigned, being duly authorized by their respective Governments, have signed this Protocol.

Done at ..., ... two thousand ... in a single copy in the English and French languages, the two texts being equally authentic.

Annex 1: Integrated Water Resources Management

The concept of Integrated Water Resource Management (IWRM) emerged during the decade of the 1990s as a response to the widespread and well-articulated fear of the 'water crisis'. In fact, the planet's freshwater resources are coming under increasingly unsustainable pressure from (i) rising populations, (ii) growing demands for water and (iii) increasing pollution.

What is fundamental is that the application of IWRM means moving from traditional sub-sectoral approaches (irrigation, production activities, etc.), to a holistic or integrated approach to water management based on a set of key jointly-agreed principles.

Integrated water management in the littoral zone is an approach meant for the governance of water and space in the coastal area and river basins with a view to satisfying the use of such a resource. It allows for a better coordination of decisions and actions in the various sectors and at different geographic scales, which leads ultimately to a more rational exploitation of resources and more effective environmental management and protection.

These water resources are shared between users, interdependent geographical spaces (countries, areas...) and between stakeholders, decision makers coming into play at various levels of the issue and of the resources.

A. Preparation of General Orientations for integrated water resources and river basin management

a) The shared character of water resources

The activities upstream of a catchment area (deforestation, dams ...) have effects on the coastal fringe, in particular in terms of flows, resources and quality of the environment.

Taking into account the littoral space, climate change and its impact, there is a need to engage the basin authorities and participating States:

- i) in developing integrated management of catchment areas and coastline areas;
- ii) in developing a platform for discussion on the dynamics of the coastal zone and on the impact of construction works in the basin, upstream from the coast, on one hand, and, on the other hand, the achievements in each of the neighboring basins. In fact, the activities and achievements can have effects far beyond the physical space of their competences (pollution, erosion, ...) and
- iii) in taking the coastal zone of their watershed into greater account.

Integrated water resource management plans should be developed for small catchment areas and streams that are not shared. Coordinating or management structures should be able to develop based on their management interests (Community Interest Groups).

b) Separation of the institutions responsible for planning and managing water use

The diversity of players involved in the catchment area and the coastline infers the development of an approach to knowledge management around the issues being addressed. States could promote data collection and information sharing for an integrated management of coastal waters and river basins. The development of knowledge as well as platforms for information sharing would help reduce uncertainties and prepare the various stakeholders to better address the severity of such phenomena.

Around a lead institution, a network-like institutional and organizational architecture can cluster the national technical services and other stakeholders whenever it comes to supporting planning and integrated water management.

c) Diversity of users and socio-economic activities

The challenge associated with water resources management has been being conversant with the various challenges that may arise in terms of security and water use. The water use system is characterized by a physical and technical structure (construction works, equipment, ...), a logical organizing structure (strategies and rules) and an economic structure (utilization, enhancement, maximization of water use). The notion of "water use" encompasses several concepts:

- i.) The economic concept which means using water to meet some needs and or to reduce or cancel their effects (risks, damage caused by water);
- ii.) The ecological concept where water use corresponds to altering its cycle, its physical, chemical and biological features (impact on the natural environment)

The variety of water uses in the littoral space and in river basins and their geographical distribution requires coordination around integrated management through territorial plans.

d) The need to conserve water for biodiversity

As part of planning, hydraulic and urban development, ecosystems may lack water or may be flooded. These ecosystems which play a key role in the context of eco-systemic goods and services (protection, biological resources, materials, waste assimilation ...) are damaged by the impact of these activities.

An ecological flow should be defined for all ecosystems, respecting the natural operation of environments and their distribution over time.

e) The freshwater-saltwater hydrodynamic

The freshwater-saltwater hydrodynamic is significantly disrupted by the construction of structures in estuarine areas of rivers to fight, for example, against salty intrusion.

Dams and other structures have stopped the migration of many species and transforms estuarine waters sometimes into seawater and sometimes into freshwater, with breaks and shock for existing species. The alternation of water types and water mixing is no longer at the mercy of natural functions

Stakeholders will have to be innovative with regard to governance of the interdependent watershed and coastal areas, mainly by developing flexible frameworks that take into account the specific realities of the coastal areas.

States should strive to develop ecological and hydrological models that will help the management of facilities (opening or closing of gates).

Liquid and solid flows regulation should take into account special circumstances, extreme weather and climate events (flooding, droughts, ...) and human actions.

B. Recommendations

- Implement processes for integrated coastline and river basin management that helps to link the various processes of the types of water, spaces, developments and dynamics of the human and physical environments. Similarly, the various (local, national, sub-regional and international) stakeholders must work together on planning, developing and integrating the management of the coastal waters and river basins;
- Prepare water resource development and management plans in the littoral zones and the river basins for all watercourses with an outlet to the ocean and inland waters so as to coordinate actions as well as players from upstream to downstream, and along the coastal zones;

- Encourage the Parties to mainstream IWRM as an implementing instrument within the purview of laws governing the coast zone;
- Support partnerships at the level of catchment areas and the relevant implementing bodies by proposing a funding facility aimed at encouraging States as well as riparian populations to carry out an integrated management approach to their water courses and catchment areas;
- Mobilize knowledge players to work within the framework of observatories and strengthen the structures that exist at the sub-regional level.

Annex 2: protection of the coastal zone

1. Regarding the protection and planning of the coastal zone in general, the Parties shall be guided by the need:

- a) To take into account areas directly and negatively affected by climate change, and natural and manmade risks that cause loss of human lives, property and biodiversity.
- b) To develop and establish a set-back line in coastal areas, starting from the high-tide or high-water mark. The established zone should be no less than 100 meters wide, subject to the provisions of paragraph c) below. National measures that determine this width wider than 100 m shall continue to apply;
- c) To adapt the abovementioned principles in line with the objectives and principles of this Protocol:
 - (i) for projects of public interest;
 - (ii) in areas with particular geographical constraints or other local constraints linked in particular to population density or social needs, where national legal instruments provide for individual housing, urbanization or development.
- d) The Parties are urged to notify the Organization of their national legal instruments providing for the adjustments referred to above.

2. The Parties shall also consider including in their national legal instruments criteria for sustainable use of the coastal zone. Such criteria, which should take into account specific local conditions, should include the following points:

- a) identifying and delimiting, outside protected areas, open areas in which urban development and other activities are restricted or, where necessary, prohibited;
- b) Controlling the linear extension of urban development and the creation of new transport infrastructure along the coast;
- c) ensuring that environmental concerns are integrated into the rules for management and use of the public maritime domain;
- d) organizing free and unrestricted public access to the sea and the shoreline, taking specific requirements, such as fragile or protected sites into consideration;
- e) restricting or, where necessary, prohibiting the movement and parking of land vehicles as well as movement and anchoring of marine vessels in fragile natural land or sea spaces, including beaches and dunes.

Annex 3: Specific coastal ecosystems

The Parties shall take measures to identify and protect the characteristics of certain specific coastal ecosystems, including corals, mangroves, seagrass, and other spawning areas and nurseries, as stated below:

1. Wetlands

Aside from the creation of protected areas and /or special management areas in order to prevent the loss of wetlands, the Parties shall:

- a) take into account the environmental, economic and social functions of wetlands in national laws and regulations, policies and strategies, plans and programmes, local initiatives and conventions related to marine and coastal areas, and when issuing authorizations;
- b) take the necessary steps to regulate or, where appropriate, prohibit activities that may have adverse effects on wetlands;
- c) undertake, to the extent possible, the restoration of degraded coastal wetlands in order to reactivate their positive role in coastal environmental processes.

2. Marine and coastal habitats

The Parties, recognizing the need to protect marine areas hosting habitats and species of high conservation value, in addition to their classification as protected areas, shall:

- a) adopt measures to ensure the environmental management of the marine and coastal zones, particularly those hosting habitats and species whose conservation and/or preservation is of great environmental and socio-economic value;
- b) undertake to promote regional and international cooperation in order to implement joint programmes to protect coastal and marine habitats.

3. Coastal forests and woodlands

The Parties shall take measures to develop, conserve or reclaim coastal forests and woodland areas in particular, aside from specially protected areas.

4. Dunes

The Parties undertake to:

- a) conserve or prohibit the exploitation or extraction of shell from dune landscapes,
- b) sustainably rehabilitate dunes, dune belts and other degraded landscapes.

Annex 4: Sector-specific recommendations for socio-economic activities in the coastal zone

- a) Agriculture, industry and energy sectors: The location and operation of agricultural and industrial activities shall ensure a high level of environmental protection in order to conserve coastal ecosystems and landscapes and prevent pollution of the sea, water, air and soil.
- b) Fisheries
 - (i) Parties shall make the necessary arrangements for coastal development projects to take into account the need to protect fishing areas;
 - (ii) They also shall ensure that fishing practices are compatible with sustainable use of natural resources and fluvial waters.
- c) Aquaculture
 - (i) Parties shall promote coastal developmental projects that take into account the need to protect aquaculture and mollusk/crustacean zones;
 - (ii) They also shall ensure that a regulatory framework is established for aquaculture, especially for the use of inputs and waste treatment.
- d) Tourism, Sporting and Recreational Activities: Parties promote :
 - (i) sustainable coastal tourism that does not damage ecosystems, natural resources, cultural heritage, coastal development and landscapes shall be encouraged;
 - (ii) specific forms of coastal tourism, including cultural, rural and eco-tourism, shall be fostered, while fully respecting the traditions of local populations;
 - (iii) the practice of given sporting and leisure activities, including recreational fishing and shellfish harvesting shall be regulated or, if necessary, prohibited.
- e) Utilization of specific natural resources
 - (i) excavation and extraction of minerals - including the use of seawater in desalination plants and quarry mining - shall be subject to prior authorization based on an environmental impact assessment;
 - (ii) extraction of sand, including on the seabed, and river sediments shall be regulated or prohibited where it risks having harmful effects on the equilibrium of the coastal ecosystems;
 - (iii) monitoring of the coastal aquifers and areas of contact or dynamic interface between fresh and salt water that could be affected by the extraction of underground water or waste released into the environment shall be undertaken regularly;
 - (iv) the exploitation of wood and non-wood forest products shall respect the principle of sustainability.
- (f) Infrastructure, energy facilities, ports and maritime works

Infrastructure, energy facilities and maritime structures shall be subject to authorization based on an environmental assessment so that their negative impact on societies, ecosystems, landscapes and the geomorphology of the coast are minimized or, where appropriate, compensated by restoration and rehabilitation measures.

(g) Maritime activities

Maritime activities must be conducted to ensure the conservation of the coastal ecosystems in conformity

with the rules, standards and procedures of the relevant international conventions.

Annex 5: Risks that may affect the coastal zone

The coastal zone is a location where many phenomena involve risks for human beings, their activities and their coastal ecosystems. The assets and resources granting it the quality of interface favour a set of issues that may be threatened by various unexpected and heightened events which could be exacerbated by climate change. Human activity also gives rise to major risks.

A. Taking stock of all possible risks

In a coastal zone, risks can be classified as follows:

- Extreme meteorological, climate-related and hydrological events causing hazards (floods, off-season rains, droughts, stormy winds, etc.);
- climatic, geological (landslides, subsidence, mudslides, soil degradation, volcanic eruptions, floods, earthquakes, tsunamis);
- Pollution of various kinds related to human activity: chemicals used in ballast waters and related substances, hydrocarbons, land-based marine pollution (farming, marine debris, ...);
- Proliferation of water weeds which can be linked to a change in the natural state of a water course or to a high concentration of substances, many water courses and expanses of the coastal zone are still threatened by this phenomenon called "green plague". This phenomenon is a product of hydro-biological changes or the introduction of exotic species into environments;
- Proliferation of seaweeds, jellyfishes and other marine species. Green algae pose a risk to human health (release of hydrogen sulfide, toxic gas, odor nuisance); impact on biological production and fishing activities and impact on the survival of certain animal and plant species. The appearance of jellyfishes in the coastal zone is a commonly noted phenomenon. Such species have an impact on fishery resources, fishing and/or tourism;
- Proliferation of land plants due to an imbalance in the ecosystem that encourages the propagation of species that are often exotic.

These risks, which are natural, biological or man-made, may be associated with a coastline that is characterized by very-fast population and urban growth.

The construction of facilities (for rainwater and sewage drainage systems...) did not keep up with accelerated urbanization of built-up areas. This resulted in floods in areas with no drainage systems and in those areas where the system capacity became inadequate in the face of the increased flows caused by growing waterproofing of urban and peri-urban areas.

Generally, the authorities are well aware of the problems associated with risks, but financial resources and an appropriate framework for action are often lacking. The instances of uninterrupted pollution of city bays by large industries speak for itself. The authorities who do not presently have effective repressive environmental regulatory frameworks are unable to prevent or control the phenomenon.

Being aware that they must find solutions to overcome this problem, many countries on the Atlantic Coast of Africa have set up various devices to cope with such risks. These activities can be termed as emergency responses.

In the various areas, urban schemas or plans (town-planning master plan, coastal zone management plan ...) were prepared to prevent the problems related to risks. The standards are hardly complied with in light of housing needs and in the absence of an effective control of constructions, notwithstanding existing environmental and town-planning codes, etc.

At the institutional level, only emergency plans (Emergency Response Plan – ORSEC Plan, ...) are mostly available, compared to preventive ones. Besides, the risks are poorly known. There is a lack of specific studies on risk quantification, and a deficit of tools for risk management. When their occurrence is linked to a multi-faceted process or when the current state of events engages other risks, managers become helpless.

In terms of strategies, existing capacities are low. The populations are less educated to deal with these risks. In addition to the above challenges, institutional incoherence in terms of addressing risks sustainably is a key challenge.

B. General Orientations for Sustainably Mitigating Risks

In the light of the importance of the littoral zone, the socio-economic issues observed there, climate change bringing about disruptive effects, recurrent and intensive phenomena, the risk issue deserves to be addressed, as, failing to bring it under control, coherent instruments can be put in place to better mitigate these risks.

Land-use planning must be better considered at a strategic level. Processes must help organize and plan efforts in a participatory holistic manner. Planning must be based on scientific results, robust knowledge on the current and likely impact of climate change on communities, territories and ecosystems.

The issue of climate change should, on one hand, be mainstreamed into land-use planning exercises and, on the other hand, influence development actions through adaptation measures that must focus on what is feasible.

The development of scenarios based on change forecasting and development options is an essential prospective activity helping to better handle uncertainties.

To address the above challenges, the management of multiple risks and disasters must focus on capacity-building that entails knowledge management and stakeholder training, ensuring the safety of populations, which requires the infrastructure-building or even resettlement, implementing socio-economic development around structuring activities of industrialization (agricultural products, fishing, tourism) and services for impacting on the standard of living of the affected populations (humanitarian actions).

Overall, the courses of action relate to spaces such as water bodies, sea frontage, low points, the mangrove ... and concern the enhancement, the setting up of facilities, organizing development operations and the implementation of institutional or regulatory measures.

For coastal erosion, the responses must alternate between "tough" solutions and biological ones. The resettlement of populations may also be considered an option when an emergency requires it.

To minimize pollution risks, the following situations that occur in the coastal zone must be addressed as proposed below:

- 1) The chemicals used in agricultural activities at major catchment areas where agricultural development (rice growing ...) is often coupled with a production of significant amount of drainage water. These waters are often discharged into water bodies, estuaries or into the sea. In addition to the standards on wastewater, agricultural wastewater management strategies aimed at stopping the pollution of natural environments.
- 2) Industrial waste is generated by various companies classified as not having treatment plants, this applies also to extractive industries whose process waters end up in natural environments. Concentrated wastewater or waters with specific features (temperatures, ...) must be processed by a wastewater treatment plant prior to disposal into natural environments.
- 3) Sewage disposal from the urban drainage systems as a result of the disposal of black wastewater or of graywater often mixed with runoff. The development of separate sewer systems, innovative

stand-alone wastewater systems and treatment plants (lagooning...) would help the reuse of a good portion of waters, particularly for agricultural activities.

- 4) Household waste come from human settlements located on the coast (cities, seaside resort ...). In the absence of effective waste collection and recycling systems, garbage is disposed of directly into natural environments. The establishment of recycling-oriented treatment systems would help control pollution.
- 5) Marine debris dumped in the ocean by ships have an impact on coastlines. Coordinated monitoring of the management of waste discarded by ships should be done by imposing a waste management control strategy in ports.
- 6) Plastic waste comes from human activity. Plastic wastes cover the terrestrial and aquatic environments and disrupt ecosystems functions. In addition, some species consume plastic waste, which causes a high mortality rate. Disposal measures taken at national level should be strengthened. Governments should pass laws to minimize the use and production of plastic waste.
- 7) Hydrocarbons are the result of production and refinery operations on the coastline; leaks occur from oil wells and ship release ballast etc. It is imperative to implement plans to fight pollution at sea.
- 8) Heavy metals must be monitored and banned, particularly in watersheds, where mining or industrialization operations are carried out.
- 9) The reuse of materials in beach reconstruction:
- 10) Regarding aquatic plants,
 - i.) The fight against the proliferation of aquatic plants requires strict management of water bodies. The different systems must be strictly monitored for hydrochemicals which often favor the development of plants. The fight against invasive aquatic plants must encourage research on appropriate methods and, at the same time, favor the enhancing the use of these plants.
 - ii.) The fight against invasive species requires monitoring the movement of plants (decorative plants, ...).

Similar measures must be taken for fauna, particularly aquatic fauna (aquarium fish, ...).

Annex 6. The protection of coastal zones and water resource management:

The effects of rising sea levels and the impact of the development of hydraulic works are visible in the coastal zone. The solutions implemented for mitigation or adjustment purposes have implications that may be negative for socio-economic development.

A. Orientation relating to Protection Works

The development of littoral zones for protection and water management purposes requires the preparation of strategies and the implementation of innovative solutions.

1) Strategies

In the field of the protection of coastal zones, the strategic steps seek to address various issues, namely: the priority areas in terms of protection against coastal erosion, investment and adjustment measures, the optimal adjustment options (withdrawal, protection, adjustment) and the coordination of efforts at every level and echelon so as to minimize the impact of the various responses. The measures are at the governance level and involve:

- a) the setting up of institutions at the local, national, sub-regional and international levels;
- b) the introduction of legislation (coastal...);
- c) the development of programmes to raise the awareness of communities on mainstreaming adjustment to climate change;
- d) economic analysis of adjustment options and investment in a range of solutions put forward under the integrated coastal zone management programmes;

With regard to water resources, the vulnerability of hydraulic systems, largely affected by the withdrawal of water to supply urban areas, recurrent drought and pollution, is linked to urban development (housing, waterproofing, sewage disposal, ...) and socio-economic activities (agriculture, tourism...).

Many dams have been constructed to support agricultural production and make available drinking water, which often can be transported over long distances. Water transfer is considered as an option alongside desalination programmes, which are gradually appearing on the scene.

Fighting against flooding and land salinization has led to the establishment of predictive control programmes, which give as much importance to construction works (hydraulic, soil protection and restoration ...) as to knowledge management.

Salt intrusion should be considered a problem for many coastal and aquatic environments due to the disruption of hydrologic functions, reduced water flows into the major systems and significant water withdrawals for irrigating farms or supplying human settlements. In this regard, desalination of seawater is seen as a way of meeting the drinking water requirements of towns and cities. This activity, which also produces salt that is often dumped into the sea, should be monitored for its impact on coastal areas and marine waters.

The salt found in some coastal zones is considered an alternative or new resource to agricultural commodities and is being harnessed in salt flats, former rice fields and tanneries.

The protection of fishery resources is a concern in the context of a pressure related to overfishing and the pollution of rivers and oceans. The development of networks of Marine Protected Areas, Seaside Parks, Coastal Parks and the identification of Ecologically or Biologically Significant Marine Areas (EBSAs) is a space strategy for the protection of fisheries resources and of coastal ecosystems.

The establishment of rehabilitation programmes for ecological functions has been instrumental in ameliorating a number of situations that were harmful to ecosystems.

The implementation of various instruments aimed to protect biodiversity (RAMSAR, IBA ...) is to be regarded as an effort for preserving local, relict, endemic and migratory species. Birds are victims of the erosion of barrier beaches, the mangrove forests, pollution or degradation of habitats... The same

observation is also made for turtles and many other species living along the coastal zones. The development of spaces and species, especially through ecotourism helps to safeguard biodiversity and the natural and cultural heritage of the coastal areas.

As part of the preventive management of risks and disasters, impact assessments represent a privileged tool to minimize hazards and institute relevant corrective measures for the different actions carried out for socio-economic development. Impact assessments should be generalized in the different sectors, and their application along with the resulting measures is considered a means to protect the coastal zone.

2) Developments Works

In terms of development there is a need to distinguish the actions that aim to combat the causes and remedial or compensatory actions. These actions implement several types of options, which are as follows:

- a) Structural actions of construction of more or less rigid control structures (bund walls, groynes and coatings);
- b) non-structural measures that are flexible and in harmony with the coastline dynamics (artificial nourishment of beaches, reconstruction of dunes and mangrove restoration); organizational measures, namely integrated management of ecosystems and resources; land-use planning, concern actions in space or have an implication on space.

The structures (ports, dams, dykes, roads, culverts, ...) that are constructed to meet development needs, improve access and address climate-change adjustment requirements, may affect ecological equilibrium as well as migration routes.

B. *Environmental Solutions to protect Coastal Zones*

- Plan the development and the integrated management of coastal zones.

Planning should be done not only by seeking to coordinate actions, but also by considering the uncertainties that may arise from various backgrounds. IWRM must be spearheaded by a lead institution. The development of the coastal zone must be supportive of an ecological approach highlighting protection services.

- Plan Green Infrastructures.

In the framework of the adjustment of coastal cities, including climate change, the planning of green infrastructure, is of great interest with regard to hazards. It must maintain linkages vis-à-vis the gray infrastructure as well as a level of eco-systemic services.

- Implement strategies based on the integration of eco-systemic goods and services under programmatic frameworks.

In this framework, the sharing of the oversight and responsibility as to biological resources provides an opportunity to increase significantly the financial, human and technical capacity. It is a way to promote the maintenance of ecosystems as a physical development alternative to any environment. Biodiversity thus becomes an option.

- Apply impact assessments beyond the immediate zone and apply them to the relevant functional spaces

The regionalization of impact assessments allows for shortening response times or even confining the problems that could occur in a restricted space. Such assessments should cover the thorough analysis of options, but also the development of scenarios under climate-change constraints.

- Focus on pollution control coupled with ecological systems including sewage treatment plants, waste recycling and reclamation;
- Implement institutional development and organizational strengthening in the coastal zone while mainstreaming the dimensions of development, spaces and institutional levels. Sub-regional coordination remains an added value and as such must be based on a scientific and policy arrangement;
- Involve research for improving knowledge of the environment using scientific information and models produced by experts that make phenomena intelligible and provide more reliable forecasting;
- Promote the ecological tax, which allows for linking economic and ecological optimization, and mobilizing resources for the restoration of environmental sites or compensation for the persons affected.

Annex 7. Environmental Assessments in the Coastal Zone

A. General guidelines

An environmental assessment is a preventive management approach implemented in the context of the delivery of developmental projects. It aims at preventing development projects from running human societies into an impasse. It is therefore an approach to environmental optimization, which aims at the sustainability of implications and impacts of any project.

1) The different types of projects requiring an environmental assessment

As part of any programmatic process, different tools are implemented while mainstreaming the "environment" dimension into projects. So

- (1) At the programming stage, you have among other things (i) strategic environmental assessment,
- 2) At the identification stage, (ii) environmental and social impact assessment,
- 3) At the project implementation and monitoring stage, (iii) the environmental audit.

At each step of the engineering development, a tool will be implemented. Every activity in the coastal zone should undergo environmental assessments, with the appropriate tools at each implementation stage.

Some development projects must be regularly monitored to reduce their impact: Construction of dykes, roads, shrimp farming, rice cultivation, construction of dams, petroleum development, river diversion, extensive agriculture and aquaculture in the intertidal zones, etc.

2) Factors to be considered during the Environmental Assessments

The environmental assessment must include the physical processes (hydrodynamics, climate change ...), social processes (development options ...) and space-related processes, resource components, use (economy ...) and decision-making (legislation ...) which define the status of coastal zones, their changing patterns of the coastal ecosystem.

3) Management measures to minimize adverse effects and maximize positive effects

Measures relate firstly to green technology and the development of low-cost, innovative, cost-effective solutions tailored to the socio-economic situation.

Measures taken must be based on a scalar approach "from local to global" which emphasizes solutions at the level of stakeholders and minimizes adverse impacts at the community level.

4) Responsibility for the mobilization of resources (financial and human) required for the enforcement of management and monitoring measures.

The responsibilities for the enforcement of measures will be borne by all relevant stakeholders according to their corporate level (political, implementation, operational), nature, legal status and position. Project proponents must play a key role in the implementation of the measures; the administration (State or local authorities) will supervise such enforcement while civil society will participate in the processes.

At the financial level, responsibility for the measures taken shall be borne by the promoters, who will have to incorporate the budgets for follow-up, monitoring and management measures into their business plan:

B. Recommendations

The Convention shall have to support States in establishing a sectoral guideline on environmental impact assessments in coastal areas, taking into account:

- i) the complementarity and dependencies between the marine part, the coastal area, the estuaries, the flood plains, the riverbeds and the watershed spaces;

ii) the integrity of the different ecosystems and species through the identification:

(a) of the impacts of human activities on natural environments, and

(b) options to reduce or offset adverse effects.

Environmental assessments should embrace a model approach defining the relevant drivers of the development of the systems to better understand and mainstream natural interactions in the national strategies for adaptation to climate change, water and hydroelectric power supply and the opening-up of areas.

Capacity building is a necessity by way of awareness-raising, education and communication for the adoption and implementation of environmental solutions.

The “polluter-pays” option should be gradually complemented by a Company Corporate Social Responsibility (CSR) approach, which must not consist only of a humanitarian undertaking, but rather be a genuine commitment to the environment to the communities.