

REGIONAL SEAS

UNITED NATIONS ENVIRONMENT PROGRAMME

Legal aspects of protecting and managing the marine and coastal environment of the East African region: National Reports

UNEP Regional Seas Reports and Studies No. 49

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FAO

PREFACE

The Regional Seas Programme was inititated by UNEP in 1974. Since then the Governing Council of UNEP has repeatedly endorsed a regional approach to the control of marine pollution and the management of marine and coastal resources and has requested the development of regional action plans.

The Regional Seas Programme at present includes eleven regions 1/ and has over 120 coastal States participating in it. It is conceived as an action-oriented programme having concern not only for the consequences but also for the causes of environmental degradation and encompassing a comprehensive approach to controlling environmental problems through the management of marine and coastal areas. Each regional action plan is formulated according to the needs of the region as perceived by the Governments concerned. It is designed to link assessment of the quality of the marine environment and the causes of its deterioration with activities for the management and development of the marine and coastal environment. The action plans promote the parallel development of regional legal agreements and of action-oriented programme activities. 2/

Decision 8/13(C) of the eighth session of the Governing Council of UNEP called for the development of an action plan for the protection and management of the marine and coastal environment of the East African region. As a first activity in the region, UNEP organized in October and November 1981 a joint UNEP/UN/UNIDO/FAO/UNESCO/WHO/IMCO/IUCN exploratory mission which visited the region.

The findings of the mission were used to prepare the following six sectoral reports:

- UN/UNESCO/UNEP: Marine and Coastal Area Development in the East African Region. UNEP Regional Seas Reports and Studies No. 6. UNEP 1982;

- UNIDO/UNEP: Industrial Sources of Marine and Coastal Pollution in the East African Region. UNEP Regional Seas Reports and Studies No. 7. UNEP 1982;

- FAO/UNEP: Marine Pollution in the East African Region. UNEP Regional Seas Reports and Studies No. 8. UNEP 1982;

- WHO/UNEP: Public Health Problems in the Coastal Zone of the East African Region. UNEP Regional Seas Reports and Studies No. 9. UNEP 1982;

- IMO/UNEP: Oil Pollution Control in the East African Region. UNEP Regional Seas Reports and Studies No. 10. UNEP 1982; and

- IUCN/UNEP: Conservation of Coastal and Marine Ecosystems and Living Resources of the East African Region. UNEP Regional Seas Reports and Studies No. 11. UNEP 1982.

1/ Mediterranean Region, Kuwait Action Plan Region, West and Central African Region, Wider Caribbean Region, East Asian Seas Region, South-East Pacific Region, South Pacific Region, Red Sea and Gulf of Aden Region, East African Region, South-West Atlantic Region and South Asian Seas Region.

2/ UNEP: Achievements and planned development of UNEP's Regional Seas Programme and comparable programmes sponsored by other bodies. UNEP Regional Seas Reports and Studies No. 1. UNEP 1982.

The six sectoral reports prepared on the basis of the mission's findings were used by the UNEP secretariat in preparing a summary overview entitled:

- UNEP: Environmental Problems of the East African Region. UNEP Regional Seas Reports and Studies No. 12. UNEP 1982.

The overview and the six sectoral reports were submitted to the UNEP Workshop on the Protection and Development of the Marine and Coastal Environment of the East African Region (Mahé, Seychelles, 27-30 September 1982) attended by experts designated by the Governments of the East African region.

The Workshop:

- reviewed the environmental problems of the region;

- endorsed a draft action plan for the protection and development of the marine and coastal environment of the East African region;

- defined a priority programme of activities to be developed within the framework of the draft action plan; and

- recommended that the draft action plan, together with a draft regional convention for the protection and development of the marine and coastal environment of the East African region and protocols concerning (a) co-operation in combating pollution in cases of emergency, and (b) specially protected areas and endangered species, be submitted to a conference of plenipotentiaries of the Governments of the region with a view to their adoption.

In consultation with the Governments of the East African region the further development of the action plan was focused on activities directly related to preparations for the conference of plenipotentiaries and to other regional activities which received a first priority rating in the programme recommended by the Mahé workshop.3/ This included the preparation of a series of country reports by experts from the region on:

- national legislation;

- national resources and conservation; and

- socio-economic activities that may have an impact on the marine and coastal environment.

3/ Report of the Workshop on the protection and development of the marine and coastal environment of the East African region, Mahé, 27-30 September 1982, (UNEP/WG/77/4).

The national reports were synthesized in regional reports 4/ 5/ 6/ which were prepared with a view to assisting the Governments of the East African region in their negotiations on the regional convention and its protocols. In addition, a technical training Workshop on the control of pollution from ships in the East African region was convened jointly by the International Maritime Organization (IMO) and UNEP in November 1983.

The present document is a compiled volume of the national reports dealing with legal aspects of protecting and managing the marine and coastal environment of the East African region. Similar volumes have been compiled for national reports covering conservation, and socio-economic activities in the East African Region 7/ 8/ 9/. The eight national studies were written by the following experts: C. L. d'Arifat (Mauritius), B. Georges (Seychelles), M. Jardin (France), J. L. Kateka (Tanzania), F. Muslim (Kenya), Ph. Randrianarijaona and E. Razafimbelo (Madagascar), A. Salim (Comoros), and M. I. Singh (Somalia). No expert was designated by Mozambique, and hence no national report on this country is contained in this volume. The national reports are reproduced in the original language in which they have been prepared and submitted.

4/ FAO/UNEP: Legal aspects of protecting and managing the marine and coastal environment of the East African region. UNEP Regional Seas Reports and Studies No. 38. UNEP, 1983.

5/ IUCN/UNEP: Marine and coastal conservation in the East African region. UNEP Regional Seas Reports and Studies No. 39. UNEP, 1984.

6/ UNEP: Socio-economic activities that may have an impact on the marine and coastal environment of the East African region. UNEP Regional Seas Reports and Studies No. 41. UNEP, 1984.

7/ FAO/UNEP: Legal aspects of protecting and managing the marine and coastal environment of the East African region: National reports. UNEP Regional seas Reports and Studies No. 49. UNEP, 1984.

8/ IUCN/UNEP: Marine and coastal conservation in the East African region: National reports. Regional Seas Reports and Studies No. 50. UNEP, 1984.

9/ UNEP: Socio-economic activities that may have an impact on the marine and coastal environment of the East African Region: National reports. UNEP Regional Seas Reports and Studies No. 51. UNEP, 1984.

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RAPPORT NATIONAL COMORIEN : par A. Salim

INTRODUCTION

L'Archipel des Comores s'étend sur 2 236 km à mi-chemin entre l'Afrique Orientale et Madagascar; il comprend principalement quatre îles mais l'étude portera seulement sur trois îles dont: Grande-Comore, Anjouan et Mohéli, Mayotte étant sous occupation française.

La Grande-Comore (Ngazidja): La plus étendue des quatre îles, elle mesure 57km de long sur 27km de large et comprend deux massifs volcaniques: au nord, la grille (volcan éteint formant une chaîne montagneuse érodée culminant à 1 087m); au sud, le Karthala, volcan en activité s'élevant a 2 460m et déversant périodiquement des coulées de lave (la dernière coulée remonte en avril 1977 au cours de laquelle la ville de Singani fut partiellement ensevelie). Le relief est composé d'une plaine côtière insuffisante, quelques dizaines de mètres environ a certains endroits, et d'un large plateau variant entre 600 et 700m d'altitude et constituant la limite de la cocoteraie qui ceinture l'île. Outre les cocotiers on y cultive jusqu'a 500m d'altitude, les girofliers (17t), l'ylang-ylang (19t), les manguiers, l'arbre à pain, le bananier, le manioc, le café, le cacao (34t) la vanille (115t) et le maïs. Au-delà de 700m s'étale une forêt tropicale entrecoupée de clairières.

La population de la Grande-Comore a été estimée à 192 177 habitants en 1980 avec une densité de 300h/km2; malgré l'exiguïté de la plaine côtière, on constate une certaine concentration de la population dans les zones côtières. Pratiquement toutes le grandes villes se trouvent sur la côte. Moroni, capitale des Comores, Mitsamiouli, Foumbouni et Ntsaouéni. Une partie de la population est installée sur le plateau: a M'béni, Mitsoudjé Dembéni.

Moroni est la seule ville possédant un port. A l'origine, il s'agissait d'un petit poste de mouillage de 100m x 15m devant accueillir des boutres de 5 à 20 tonnes; au moyen d'un équipement rudimentaire (grue manuelle), on assurait les opérations de chargement et de déchargement de marchandises. Un autre poste de mouillage mesurant 150m sur 15m et d'une profondeur a marée basse de 3,5m accueille des caboteurs de 300 a 400 tonnes. Toutefois, les navires importants ne peuvent y accéder et jettent l'ancre au large, le chargement et le déchargement s'effectuant au moyen de boutres. Le port est équipé d'entrepôts, de deux grues mobiles, trois tracteurs et quatre remorques. Le port de Moroni accueille en moyenne 250 navires par an. La nature du trafic maritime se définit comme suit:

Exportation: vanille, ylang, girofle, coprah, café, cacao.

Importation: Riz, produits pétroliers, viande, ciment, fer, sucre, hydrocarbures.

Outre le transport maritime, les zones côtières connaissent une activité importante liée a la pêche et a l'exploitation des produits tels que le sable et le corail. Cette concentration de l'activité économique dans les zones côtières a des incidences écologiques sur l'environnement côtier et marin.

Anjouan: Deuxième île de l'Archipel, elle est constituée d'un bloc de terre ayant la forme d'un triangle et mesurant 40 km de côté; au centre, la montagne M'trungui culminant a 1 575m se divise en trois péninsules distinctes: au nord, Zimlimé; a l'ouest, Sima; au sud, Nioumakelé.

La végétation est identique à celle qu'on trouve en Grande-Comore: cocotiers, manguiers, fruits à pain, et les cultures vivrières. Contrairement à la Grande-Comore, Anjouan possède des cours d'eau permanents qui irriguent les terres argileuses de la chaîne montagneuse centrale. Anjouan ne possède pratiquement pas de plaine côtière et le littoral est constitué de falaises tombant à pic dans la mer. Parfois les profondeurs des eaux près de la côte atteignent 500m. La forêt, située sur le principal bassin souffre beaucoup de l'érosion des sols et des cultures extensives.

La population d'Anjouan est estimée a 137 621. Les villes côtières sont: Mutsamudu, capitale de l'île avec 56 000 habitants. C'est aussi le premier port des Comores, et le seul port de l'île. Il mesure 178m de long et atteint des profondeurs de 7m a son extrémité. Il peut accuellier à la fois des caboteurs de 600t et caboteurs de 400t. Cependant, les gros navires jettent l'ancre au large et sont chargés et déchargés par boutres. Le port est équipé d'entrepôts (1 900m2), hangars (2 500m2), de deux grues mobiles, (10 a 15t), deux tracteurs et trois remorques. Les autres villes côtières sont: Tsembehou, M'remani. Le port de Mutsamudu connaît depuis quelques années un accroissement de son trafic. Un projet financé par des organismes internationaux et nationaux veut faire du port de Mutsamudu la plaque tournante de l'activité maritime aux Comores. Outre cette activité née des échanges internationaux propre au port de Mutsamudu, les villes côtières connaissent une activité maritime liée a l'exploitation des ressources naturelles de la mer: extraction du corail, enlèvement du sable, pêche artisanale. Comme en Grande-Comore, la concentration de l'activité économique dans les zones côtières affecte l'environnement et pose un problème d'hygiène et de salubrité publique.

Mohéli: La plus petite des îles, elle est composée d'une chaîne de montagne très peu prononcée culminant a 860m. Elle mesure 30 km de long sur 12 km de large. Elle est constituée de vallées larges et fertiles soumises a érosion importante. La côte est plate et comporte plusieurs plages sablonneuses; le plateau continental est en pente douce contrairement aux autres îles. La végétation est composée des espèces poussant dans les autres îles. Mohéli possède des cours d'eau qui irriguent les vallées.

La population de Mohéli est estimée a 17 197 habitants. L'île ne comporte que trois agglomérations importantes: Fomboni, capitale de l'île, Noumachouoi, Djomézi.

La ville de Fomboni possède un poste de mouillage utilisable seulement à marée haute; a marée basse, la jetée est au-dessus de l'eau. Le trafic maritime est difficile; le chargement et le déchargement des bateaux se font souvent sur le sable de la plage à dos d'hommes.

Le port ne possède pas d'équipements propres de manutention et d'entreposage des marchandises. Cependant, l'île de Mohéli connaît également une activité côtière et maritime importante due à l'eploitation des ressources de la mer (enlèvement du sable, pêche artisanale).

EXPLOITATION DU DOMAINE PUBLIC

Définition et exploitation du domaine public terrestre

Le domaine public terrestre est réglementé par le décret du 25 janvier 1930. La contenance du domaine public comprend les forêts et les accessoires des forêts définis comme "tous végétaux ne constituant pas un produit agricole". La forêt est soumise a l'aménagement et à l'exploitation par coupes régulières et son exploitation et celle de ses produits accessoires sont soumises a une autorisation administrative (article 5).

L'exploitation non autorisée des produits de la forêt est punie d'une amende de 500 a 5 000 francs et d'un emprisonnement de un mois à un an, avec confiscation au profit de l'Etat des produits indûment récoltés (article 49). Celle des produits accessoires des forêts est punie d'une amende de 50 000 francs et d'un emprisonnement de 15 jours à trois mois (article 50). Les destructions, saccage, dommage par tout moyen des terrains reboisés de main d'homme ou de forêts repeuplées artificiellement sont punies d'un emprisonnement de un à cinq ans.

Ensuite, le texte procède à un classement des zones protégées contre la dégradation. Des mesures de protection et de reboisement sont prises et leur mise en oeuvre est obligatoire pour les versants montagneux offrant un angle de 35 degrés et plus, les dunes du littoral, les terrains où pourraient se produire des ravinements dangereux, les massifs isolés (articles 18 et 24).

Un droit général d'usage est accordé aux collectivités, mais ce droit est exercé sous le contrôle de l'Administration; les pouvoirs publics peuvent suspendre ce droit d'usage si l'intérêt public est en danger.

L'exploitation non suivie du reboisement prescrit est punie d'une amende égale au quintuple de la redevance annuelle. Les terrains broussailleux font l'objet de dispositions spéciales et le texte dénonce la pratique de leur défrichement par le feu. L'article 36 interdit le défrichement par le feu sans autorisation. Sont également interdits, les feux de brousse et de prairie et le passage des troupeaux dans certaines zones du domaine public.

L'allumage des feux de brousse sans autorisation et sans prendre les précaution nécessaires, le fait de laisser pâturer dans des zones interdites sont punis d'une amende de 100 à 2 000 francs et d'un emprisonnement de un à six mois.

Disposition spéciales concernant les palétuviers

L'exploitation des peuplements des palétuviers est réglementée par l'arrêté du 5 août 1932; l'exploitation des palétuviers est subordonnée à l'obtention d'un permis de coupe délivré par l'Administration (articles 1 et 2).

Le texte définit les conditions d'exploitation de certaines espèces et les mesures protectrices de celles-ci. Lorsque l'exploitation porte sur les écorces a tannin, le concessionnaire est obligé d'exploiter la totalité du produit, bois et écorces, l'écorçage ne pouvant s'effectuer que sur l'arbre abattu; les arbres d'une dimension inférieure a 15 cm de diamètre au-dessus de la jonction des racines ne peuvent être coupés. Les bois écorcés qui ne peuvent être utilisés, doivent être mis en tas dans un endroit où ils ne gênent pas la croissance ou la régénération du peuplement.

Lorsqu'il s'agit d'une exploitation de bois d'industrie, de bois de chauffage, ou de charbon de bois, les espèces non tannifères sont abattues a partir de 10 centimètres de diamètre. Les mesures générales de protection et de sauvegarde prévues par le décret du 25 janvier 1930 sont applicables au peuplement des palétuviers. Les violations des dispositions relatives à l'exploitation des palétuviers sont sanctionnées par les dispositions pénales prévues par le décret du 25 janvier 1930 (articles 49, 50 et 54).

Exploitation du milieu marin

Définition de la souveraineté des Comores sur les eaux territoriales

Le texte de base est la loi no. 82-005 relative a la délimitation des zônes maritimes. Dans un titre premier, la loi affirme la souveraineté des Comores sur "les eaux englobées par les lignes de base, qui sont dites eaux archipélagiques, indépendamment de leur profondeur ou de la distance qui les sépare de la côte". Cette souveraineté est étendue "a l'espace aérien sus-jacent aux eaux archipélagiques, aux fonds marins, au sous-sol correspondant et aux ressources qu'ils contiennent." Néanmoins, un droit de passage inoffensif peut être accordé par les pouvoirs publics.

Ensuite, la loi définit la mer territoriale en fixant sa limite a 12 milles marins (article 3). La souveraineté des Comores est étendue à cette mer territoriale, à l'espace aérien correspondant, ainsi qu'au fond et au sous-sol de cette mer. L'article 6 définit "la zone économique exclusive, délimitée d'un côté par la limite extérieure de la mer territoriale et de l'autre par une ligne dont chaque point est éloigné d'une distance de 200 milles du point le plus proche de la ligne de base ou équidistant des lignes de bases des côtes comoriennes et de celles des côtes des pays étrangers qui leur font face". Pourtant cette question est négociable et peut faire l'objet de convention particulière (article 6).

Exploitation des eaux territoriales

C'est une loi du 3 décembre 1968, rendue applicable aux Comores par le décret no. 71-360 du 6 mai 1971 qui a défini les règles d'exploitation du plateau continental. L'article 2 de cette loi dispose que "toute activité entreprise par une personne publique ou privée sur le plateau continental en vue de son exploration ou de l'exploration de ses ressources naturelles est subordonnée a la délivrance préalable d'une autorisation". Néanmoins, sont dispensés d'autorisation les nationaux exploitant les ressources végétales ou animales des espèces sédentaires. Ce texte a une portée très limitée car il ne traite pour les étrangers que de l'activité exploratrice des eaux. La loi définit ensuite des mesures de sécurité relatives à la sauvegarde de la vie humaine en mer et réglemente les équipements d'exploration qui ne doivent pas se confondre avec les marques de signalisation maritime ou nuire à l'observaton d'une telle marque par les navigateurs. L'inobservation de cette réglementation est sanctionée par une amende de 400 à 2 000 francs et d'un emprisonnement de six jours à un mois.

L'exploitation de la zone économique

L'exploitation de la zone économique est réglementée par la loi no. 82-005 précitée. Selon l'article 7, "dans leur zone économique exclusive, les Comores ont des droits souverains aux fins de l'exploration et de l'exploitation, de la conservation et de la gestion des ressources naturelles, biologiques ou non biologiques, du fond des mers et de son sol et des eaux sus-jacentes ainsi qu'en ce qui concerne d'autres activités tendant à l'exploration et à l'exploitation de la

zone à des fins économiques, comme la production d'énergie à partir de l'eau, des courants et des vents". En outre, les Comores ont la juridiction en ce qui concerne "la recherche scientifique marine, la préservation du milieu marin, la prévention de la pollution des mers." Toutefois la navigation et le survol de la zone économique est libre sous la condition du respect de la convention sur le droit de la mer (article 8).

Les mesures de protection des ressources (article 9)

La loi prévoit le réglementation par décrets des prises autorisées des ressources biologiques et minéralogiques; elle prévoit également la lutte contre la surexploitation des espèces, cette lutte pouvant être menée en association avec les organisations sous-régionales, régionales et mondiales concernées. En cas d'insuffisance de moyens de récolte des ressources de la zone économique, des autorisations peuvent être données à d'autres Etats par voie d'accords. L'inobservation de ces dispositions est sanctionnée par une amende de 10 millions à 80 millions de francs CFA et à une saisie conservatoire du navire, ou de l'une de ces deux peines seulement.

Réglementation générale de la pêche

La première réglementation de la pêche repose sur le décret loi du 9 janvier 1852; c'est un texte d'ordre général définissant les conditions de pêche dans les territoires d'outre mer. Néanmoins, la seule disposition présentant un intérêt actuel reste l'article 3 qui pose une interdiction générale" de faire usage pour la pêche, soit de la dynamite ou de toute autre matière explosive, soit de substance ou d'appât pouvant enivrer ou détruire les poissons, crustacés ou coquillages."

Ensuite est intervenu le décret de 1922 qui pose le principe de la liberté des pêches maritimes en définissant les règles de conservation des espèces marines, la police des bateaux de pêche et l'établissement des pêcheries sur le domaine public maritime.

Une loi toute récente (loi no. 82-05) intervenant pour délimiter les zones maritimes nationales, consacre le principe de la liberté de pêche des nationaux en disposant dans son article 7-c que "tous les Comoriens peuvent pêcher librement dans la zone économique exclusive des Comores." Le même article attribue a l'Etat comorien la juridiction en ce qui concerne la préservation du milieu marin et la prévention de la pollution de la mer.

La loi no. 82-015 réglemente l'activité des navires de pêche étrangers dans les zones maritimes comoriennes. L'article 1 porte sur la définition de navire de pêche, entendu comme "tous navires ou embarcations que leurs aménagements destinent a la pêche et aux activités annexes de celle-ci ou encore qui sont utilisés pour pêcher, ou traiter le produit des pêches." Ensuite, le texte procède a la distinction entre les navires de pêche locaux (ceux ayant la nationalité comorienne) et les navires de pêche étrangers. Ces derniers sont frappés d'une interdiction absolue de pêche dans la mer territoriale (article 2), tandis que les navires de pêche locaux jouissent d'une liberté exclusive de pêche dans ces eaux.

Par contre, la réglementation de la pêche dans la zone économique est uniforme et s'applique indistinctement aux navires étrangers et nationaux. L'article 3 de la loi dispose qu'aucun navire de pêche ne saurait être utilisé pour pêcher ou remplir une activité de pêche dans la zone économique exclusive des Comores. Toute activité de pêche dans la zone économique est subordonée a l'obtention d'une licence délivrée par le Ministre chargé des pêches (articles 3 et 5). L'octroi de la licence peut

être soumis a des conditions portant sur les zones et les limites de pêche autorisées, là ou les périodes de pêche, les poissons et produits de la mer pouvant être pris par espèces, tailles, sexes, âge, les volumes de prise et les formes de pêche. Pour l'application de cette règle on a prévu la création d'un corps d'agents de contrôle investis des pouvoirs d'ordonner l'arrêt des navires, de monter a bord pour procéder a des vérifications de documents et de matériels. Les manquements a cette réglementation sont sanctionnés par le retrait de la licence, la saisie du navire et des produits et le paiement d'une amende.

Prohibition et contrôle de certaines formes de pêche. Deux formes de pêche sont interdites: la première concerne l'interdiction posée par l'article 3 du décret loi de 1852, prohibant "l'usage pour la pêche, soit de la dynamite ou de tout autre explosif, soit de substance ou d'appât pouvant enivrer ou détruire les poissons, crustacés ou coquillages."

Le deuxième texte est un arrêté du 8 octobre 1980 pris par le Gouvernorat d'Anjouan, "interdisant la culture, le colportage et l'emploi du tophrosia candida (wourouva) comme moyen de pêche". L'article 1 dispose que "la culture, le colportage et l'emploi du tophrosia candida sont formellement interdits dans l'ensemble du gouvernorat d'Anjouan.

L'article 2 autorise sa culture comme échantillon pour les stations agricoles. Cette forme de pêche n'est pas très pratiquée dans les autres îles et la nécessité de généraliser cette interdiction n'est pas pressante; par contre, la pêche au drap, (forme de pêche qui consiste a étendre a marée basse un drap a la sortie d'une poche d'eau et de ramasser tous les poissons qui s'y trouvent) paraît dangereuse et mérite d'être réglementée. Cette forme de pêche est courante en Grande-Comore.

La protection de certaines espèces

Les cétacés et les phoques: L'arrêté gouvernemental du 9 mars 1939, englobant Madagascar, Comores, les îles Saint Paul et Amsterdam, les archipels Kerquelen et Crozet, la terre Adélie, définit les régles d'exploitation des cétacés et des phoques. Pourtant ce texte a un intérêt actuel très limité pour les Comores.

Le coelacanthe: C'est un poisson rare qu'on croyait disparu et qu'on a trouvé par hasard dans les zones maritimes des Comores. Il présente un grand intérêt scientifique, et de temps en temps il est activement recherché, sa capture étant récompensée par les pouvoirs publics. L'arrêté no. 65-1143/PROD du 12 octobre 1965 encourage cette pêche en attribuant une prime de 70 000 francs CFA a la capture de coelacanthes. Le versement de cette prime a entraîné une capture excessive. Pour prévenir sa surexploitation, un arrêté du 12 janvier 1974 est intervenu pour déclarer le coelacanthe "animal intégralement protégé" et "sa capture systématique" interdite. Néamoins, la pêche peut être autorisée au profit de certaines missions scientifiques ou certaines personnalités qui par leur fonction sont appelées a participer au développement touristique des Comores (article 4).

Les invertébrés: L'arrêté gouvernemental du 15 mai 1922 définit les règles d'exploitation des huîtres par les indigènes (nationaux). Il consacre la liberté de pêche des huîtres mais prescrit les méthodes de pêche à employer et les prises permises.

Les tortues: A l'origine, la tortue était pêchée pour la consommation, mais depuis quelque temps elle est recherchée pour sa carapace décorative; cette nouvelle destination a entraîné une surexploitation des tortues, et les pouvoirs publics, devant la menace d'extinction de l'espèce, ont dû prendre des mesures strictes d'interdiction.

La décret no. 79-012 du 9 avril 1979 est intervenu pour interdire la capture des tortues; selon l'article 1 "la capture des tortues de mer est interdite dans les eaux territoriales des Comores, de même que dans les eaux internationales limitrophes". L'extension de l'interdiction a la mer internationale révèle la gravité du problème, mais on est réservé quant au succès de ces mesures de sauvegarde, les Comores n'ayant pas la souveraineté sur la mer internationale. Une solution efficace consisterait à faire intervenir un accord régional de protection de ces espèces menacées. On peut regretter également que le texte n'ait pas étendu l'interdiction a la cueillette des oeufs de tortues qui sont pondus souvent dans le sable des plages. La capture des tortues de mer est sanctionnée d'une amende de 25 000 francs et d'un emprisonnement de huit jours avec une saisie automatique des tortues qui seront mises en liberté si elles sont vivantes et détruites par incinération si elles sont mortes ou blessées grièvement.

Extraction du sable marin et du corail

L'extraction du sable marin et du corail devrait être étudiée dans l'exploitation du milieu marin, mais compte tenu de l'importance du problème, il nous paraît utile d'y consacrer une section à part, pour marquer l'acuïté du problème.

Extraction du corail

Le corail est exploité pour la fabrication de la chaux servant de mortier dans la construction des immeubles; cette exploitation est accentuée par le fait que beaucoup de Comoriens ignorent que le corail est une matière vivante. La surexploitation du corail entraîne le vide de certains fonds marins et endommage l'habitat naturel des poissons et des herbiers sousmarins; des signes de dépeuplement de ces zones sont sensibles et la pêche côtière devient de plus en plus pénible et difficile.

La transformation du corail en chaux demande une quantité importante de bois, et ce procédé entraîne une déforestation excessive. Les pouvoirs publics sont sensibles aux dangers que court l'environnement mais l'extraction du corail est liée au coût élevé des matériaux de construction; actuellement la tonne de ciment coûte 50 000 francs CFA; on comprend évidemment la gêne des pouvoirs publics d'interdire l'extraction du corail au moment où le ciment est hors de portée des bourses de la grande majorité de la population. De toute évidence, il est urgent de freiner cette surexploitation du corail, mais toute réglementaton prohibitive devrait être précédée de solutions de substitution pouvant offrir des matériaux différents de construction.

L'arrêté gouvernemental du 15 mars 1922 et le décret du 14 avril 1929, consacrant le principe de la liberté de pêche pour les nationaux, restent les seuls textes applicables en la matière. Depuis, aucun texte n'est intervenu pour réglementer l'extraction du corail. Ce vide législatif a entraîné une exploitation excessive du corail dont la protection s'avère urgente.

L'enlèvement du sable

Le principe de la liberté d'exploitation des ressources naturelles de la mer reste posé par l'arrêté gouvernemental du 15 mars 1922.

L'enlèvement du sable marin est destiné a la construction immobilière, et le développement du secteur du bâtiment de ces dernières années peut donner une idée de l'ampleur de cet enlèvement de sable; certaines plages sont aujourd'hui complètement

dénudées de leur couverture de sable. Jusqu'à présent aucun text général n'est venu réglementer l'enlèvement du sable. Néamoins, des actions régionales ont été entreprises pour freiner cette dégradation des côtes. C'est pour répondre a ce souci de protection que l'arrêté no. 80-44/GIC est intervenu pour interdire l'extraction de sable sur les plages a caractère touristique; le texte procède a une énumération exhaustive des plages dont l'extraction du sable est interdite. Toutefois, cette interdiction pose le problème immédiat de la fourniture des produits de substitution pouvant remplacer le sable. On pourrait penser a l'utilisation de la pouzzolane (sable volcanique) mais son enlèvement est également interdit par la décision no. 80-001 du gouvernorat de Ngazidja. Toutefois, des dérogations dictées par le souci de "concilier les nécessités touristiques et les nécessités publiques" peuvent être accordées par l'administration. L'interdiction qui frappe l'enlèvement du sable, risque de gêner le développement du secteur du bâtiment si une solution urgente de remplacement n'est pas trouvée. Les manquements a l'interdiction d'enlèvement du sable sont punis du 10 jours à un mois de prison et d'une amende de 25 000 à 100 000 francs en plus de sanctions administratives allant de la mise en fourrière du véhicule en cause jusqu'à sa confiscation (article 4).

Le régime du pilotage dans les eaux maritimes

La première réglementation concernant les ports repose sur la loi du 28 mai 1928, relative au régime du pilotage dans les eaux maritimes. Dans un premier temps, le texte définit le pilotage et consacre l'obligation du pilotage. Aux termes de la loi, "le pilotage consiste dans l'assistance donnée aux capitaines par un personnel commissionné par l'Etat pour la conduite des navires à l'entrée et la sortie des ports, dans les ports, rades et eaux maritimes des fleuves et des canaux."

"Le pilotage est obligatoire pour tout bâtiment français ou étranger." Cependant, le texte exclut l'obligation du pilotage pour les bâtiments de moindre importance (navire à voile d'une jauge inférieure a 100 tonneaux, navire a propulsion mécanique d'une jauge inférieure a 150 tonneaux). Le pilotage n'est pas obligatoire également pour tout navire affecté exclusivement à l'amélioration, à l'entretien et à la surveillance des ports et de leurs accès.

Définition des ports et rades

La police des ports et des rades est réglementée par le décret du 22 février 1935. L'article 1 porte sur la définition des ports et rades aux termes duquel "les ports sont les espaces naturels ou artificiels, que la mer remplit continuellement ou par intermittence et dans lesquels les navires, abrités contre les vents et les lames, peuvent être construits, réparés, chargés et déchargés." C'est une définition a la fois large et étroite; large parce qu'elle comprend les espaces naturels, étroite parce qu'elle élargit les activités portuaires en incluant la construction et la réparation des navires.

"Les rades sont les espaces d'une côte non abritée du vent ou de la houle, où viennent mouiller les navires pour charger et décharger." La définition comprend toutes les zones côtières où une activité de chargement et de déchargement s'exerce.

Dispositions tendant a prévenir les accidents de mer et a protéger le milieu marin

Les mouvements des navires sont dirigés par des agents publics spécialisés qui réglementent l'ordre d'entrée et de sortie des navires dans les ports (article 5); sauf cas de nécessité absolue, aucun navire ne doit être mouillé dans la passe des navires (article 7). Dans les limites de chaque port ou rade, les navires,

embarcations, engins flottants doivent se conformer "au règlement international sur le service des feux, les signaux a faire et les manoeuvres a exécuter pour prévenir les abordages." Une autre disposition est consacrée a la prévention du pourrissement des marchandises dans les ports; l'article 17 exige que "les marchandises déchargées doivent être enlevées au fur et à mesure qu'elles ont subi la vérification de la douane, et au plus tard 24 heures après cette vérification. Cette disposition n'est pas appliquée avec la rigueur nécessaire car il est courant de constater dans les quais et dans les entrepôts portuaires des marchandises qui pourrissent faute d'enlèvement dans les délais.

Dispositions spéciales contre les incendies

La loi interdit l'allumage des feux dans les quais, ou dans un espace de 10m a partir des limites des zones portuaires. L'allumage dans les bâteaux est soumis a des conditions rigoureuses:

- la lumière doit être enfermée dans des fanaux;
- interdiction de l'usage des huiles essentielles de pétrole autres analogues.

Pour les navires de commerce, porteurs de matières dangereuses pouvant etre une cause d'explosion ou d'incendie, ils sont guidés vers un lieu de mouillage spécial. Cette disposition s'applique aux navires transportant les hydrocarbures; malheureusement on peut regretter que le mouillage de ces navires pétroliers se fasse quelquefois dans les mêmes lieux que les autres navires.

Mesures de protection de l'environnement côtièr et portuaire

Le décret du 22 février 1933 réglant la police des ports et des rades prescrit certaines mesures tendant a protéger l'environnement côtier et portuaire. C'est ainsi que l'article 33 pose une "interdiction absolue de jeter des terres, des décombres, des ordures ou matières quelconques dans les eaux du port ou de la rade." Le texte fait également interdiction "de nettoyer a moins de trois milles en dehors des limites du port ou de la rade, les cales, les soutes des navires ayant transporté des huiles minérales ou végétales. Il est probable que cette protection est insuffisante et que cette limite devrait être portée à la hauteur correspondent à la limite des eaux territoriales.

Les quais sont également protégés et l'article 36 dispose que "les marchandises infectes ne peuvent rester déposées sur le quai; leur enlèvement doit être immédiat après leur déchargement." A la fin de chaque journée, les quais, terre-pleins, ou appontements doivent être balayés (article 36) et aucun navire ne peut quitter la place où il a chargé ou déchargé du lest avant que le quai ait été complètement balayé. Les infractions à ces disposition sont sanctionnées par une amende de 500 francs maximum et en cas de récidive dans l'année, à un emprisonnement de 15 jours à deux ans.

Organismes et services de protection de l'environnement

Association pour la gestion des ports de l'Afrique de l'Est et Australe

C'est un organisme régional groupant les Etats de l'Afrique de l'Est et Australe, dont la mission est de promouvoir le développement et la coopération régionale dans le domaine de la gestion des ports; cet organisme a été consacré par la loi no. 80-15 portant ratification de l'accord; dans le cadre de cette mission,

Les brigades de surveillance des côtes

Les brigades de surveillance des côtes ont été créés par les décrets no. 81-047 et 048/PR. Une brigade est prévue pour la Grande-Comore avec base à Moroni et une autre pour Anjouan avec base à Mutsamudu. La brigade de surveillance des côtes a pour mission "de contrôler les eaux territoriales, d'assurer la police de la navigation et des pêches en mer et de faire respecter les lois et réglements en vigueur dans lés domaines maritimes. Elle participe également à la sécurité et la sauvegarde des vies humaines en mer."

Le décret no. 81-008/PR a créé également un centre fédéral d'instruction marine dont la mission est d'assurer la formation et l'entraînement des équipages des vedettes de surveillance côtière comoriennes.

L'office national des ports

L'office national des ports a été créé par la loi no. 81-37, modifiée par la loi no. 82-25 du 19 novembre 1982; c'est un organisme central de gestion des ports. Selon l'article 2 de la loi, "l'office national des ports a pour objet: l'exploitation technique et commercial, l'entretien et le développement de tous les ports des Comores et de toutes les installations de navigation maritime et de météorologie qui lui sont rattachées."

Les services administratifs chargés d'une mission de protection de l'environnement

Ministère de l'équipement et de l'environnement: Le décret no. 82-012/PR portant organisation des services public institue au sein du ministère de l'équipement et de l'environnement une direction de l'environnement et de l'urbanisme.

Ministère de la production: Le décret no. 81-0177 institue une direction de l'océanographie et des pêches maritimes au sein du ministère.

Secrétariat d'Etat chargé du transport et du tourisme: Il comprend une direction des transports maritimes et une direction du tourisme.

Au niveau régional, il faut noter, pour la Grande-Comore, le commissariat au développement économique pourvu d'une direction régionale du tourisme, de l'environnement et de l'artisanat (arrêté no. 79-001/GIG-CAB).

Pour Anjouan, c'est le commisseriat aux équipements publics à l'urbanisme et à l'environnement (arrêté no. 81-35/GN).

PROTECTION DE L'ENVIRONNEMENT DU DOMAINE PUBLIC

Règles générales

La voirie urbaine:

Le texte de base reste la loi du 15 novembre 1927. L'article 2 institue une obligation générale et permanente de nettoyage en disposant que "tous propriétaires ou locataires sont tenus de faire balayer régulièrement tous les jours, avant huit heures du matin, la voie publique devant leurs maisons, cours, boutiques, jardins et

autre emplacement. L'obligation de balayage de la voie publique porte sur la surface du trottoir et du caniveau contigus a l'immeuble." Les gros arbres doivent être taillés pour assurer la libre circulation. Une fois ramassées, les ordures ménagères doivent être portées chaque jour hors des habitations pour être déposées sur la voie publique dans les endroits indiqués par l'autorité administrative. Un ramassage doit être fait par des bennes avant la tombée du jour (article 4).

La voirie rurale:

Selon l'article 15 de la loi, "dans les villages, les chefs de village font creuser une fosse de 3 à 4m de profondeur et à 200m au moins des dernières maisons pour servir de dépôt de toutes les ordures ménagères du village." Cette réglementation comprend des sanctions pénales dont l'amende et, en cas de récidive, d'un emprisonnement de 6 à 15 jours.

Salubrité de la ville de Moroni

Depuis quelques années, Moroni, capitale des Comores a connu un essor très important et a vu sa population s'accroître dans de très grandes proportions; l'un des grands problèmes de la ville reste celui de sa salubrité. Malgré les efforts entrepris par les pouvoirs publics, les ordures ménagères sont déversées continuellement dans la mer, considérée à tort par beaucoup comme une pubelle géante. Ce sentiment de considérer la mer "comme une poubelle" se retrouve même dans certains services administratifs; plusieurs procès-verbaux du service de conditionnement font état de l'immersion au large de Moroni, de quantités importantes de produits avariés. Procès-verbal no. 80-20 du service du conditionnement fait état de l'immersion de 40 tonnes de viande avariée au large de Moroni; un autre procès-verbal fait état de l'immersion de plusieurs tonnes de farine impropre à la consommation et de plusieurs cartons de lait au large de Moroni.

Pourtant, la réglementation sur les ordures ménagères est très ancienne et remonte à la loi du 15 novembre 1927 précitée. Ce texte dispose dans son article 4 que "les ordures ménagères doivent être portées chaque jour, hors des habitations et déposées dans les endroits indiqués par l'Administration." Il faut noter qu'aucun texte n'était intervenu pour indiquer les lieux de dépôt et par conséquent les ordures ménagères étaient soit déposées sur les côtes, soit tout simplement jetées dans la mer; un texte de portée générale permettait cependant de réprimer ces actes; c'est le décret du 22 février 1935 relatif à la police des ports et des rades qui établit "une défense de jeter des terres, des décombres, des ordures ou des matières quelconques dans les eaux des ports et des rades," sous peine d'une amende de 500 francs et en cas de récidive d'un emprisonnement de 15 jours à deux ans. Ensuite, c'est un arrêté municipal du 1 juillet 1967 qui est intervenu pour interdire le dépôt des ordures ménagères sur le domaine public; mais ces textes restent d'application très restreinte et à notre connaissance, aucun cas de condamnation n'a été enregistré depuis l'entrée en vigueur de cette réglementation.

Une opération toute récente, baptisée "Moroni ville propre" tente de lutter contre cette situation en laissant des bidons dans les quartiers pour servir de poubelle. L'opération est trop récente pour permettre de mesurer son efficacité. Toujours est-il que cette situation entraîne des conséquences graves, telle l'errance des animaux domestiques comme les chèvres, les chats et les chiens qui viennent se nourrir sur les dépôts d'ordures. C'est pour lutter contre cette errance des animaux que l'arrêté no. 81-99/GIC est intervenue pour réglementer la mise en fourrière des animaux errants.

Ensuite, pour sensibiliser l'opinion publique sur les dangers d'une telle situation, une commission a été créé pour l'assainissement et la promotion de la ville de Moroni (arrêté préfectoral no. 81-03/PC). Il faut rappeler également le problème d'insalubrité tenant à la stagnation des eaux usées aux abords des fontaines publiques. Cette question est réglementée par l'arrêté no. 81-02 PO "interdisant l'usage de l'eau à des fins domestiques dans les environs des fontaines publiques."

Enfin, il faut souligner que dans le cadre de la protection de l'environnement, le projet "cocotier dératisation" qui a pour objet la lutte contre les rongeurs pour améliorer la production des noix de coco, joue un rôle important dans cette lutte pour la salubrité publique.

Protection de l'environnement marin

Salubrité du milieu marin

Le texte de base reste le décret du 2 février 1935. L'article 33 pose "une interdiction absolue de jeter des terres, des décombres, des ordures ou matières quelconques dans les eaux du port ou de la rade." Par sa généralité, l'interdiction peut être étendue a toute la zone côtière, surtout si l'on tient compte des termes retenus pour définir les ports et les rades (article 2 du décret du 22 février 1935).

Pollution des eaux par les navires

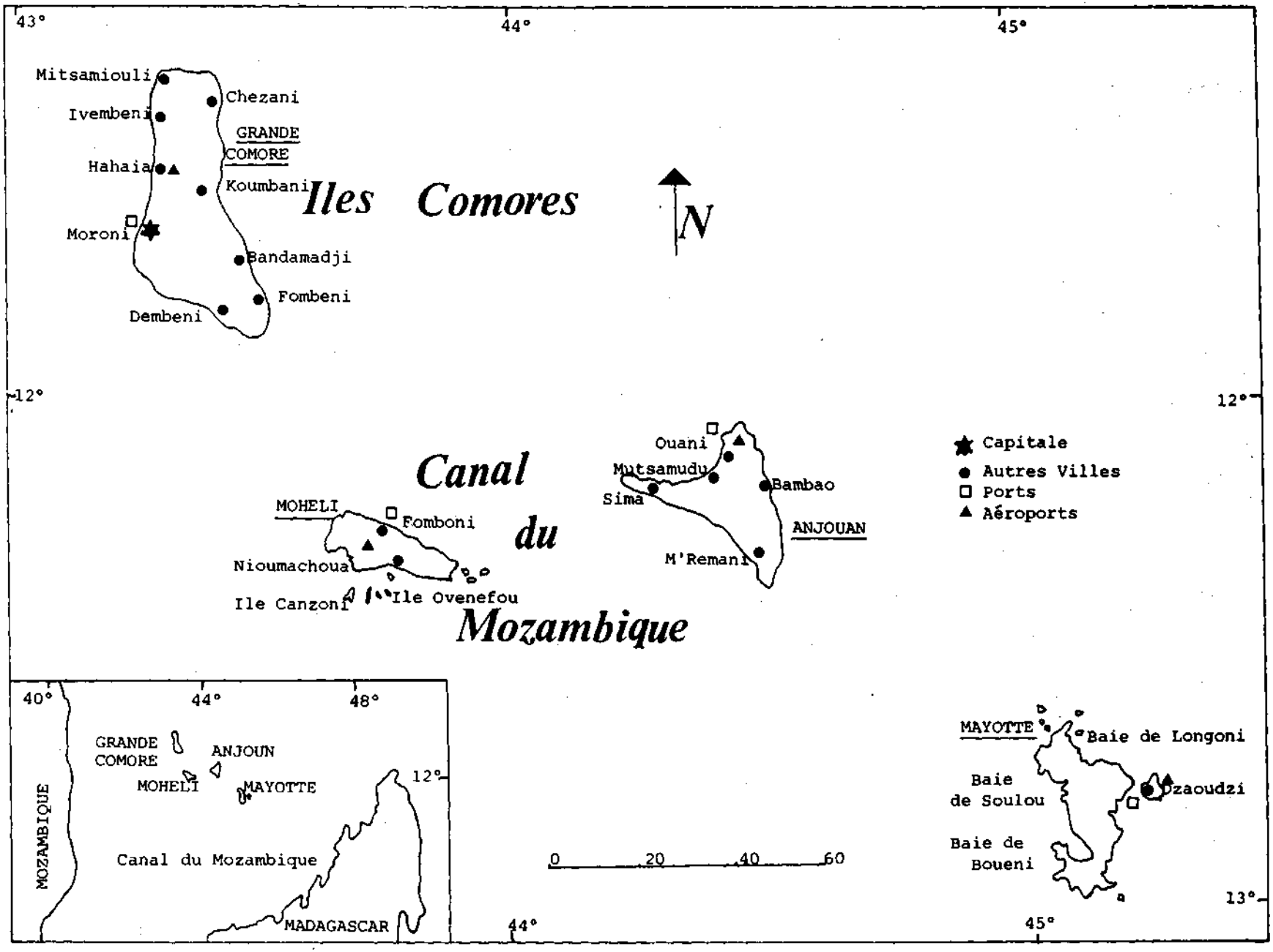
La première réglementation découle du décret du 22 février 1935. Le texte interdit de nettoyer à moins de trois milles en dehors des limites du port ou de la rade, les cales, les soutes des navires ayant transporté des huiles minérales ou végétales.

Ensuite, une loi no. 477 du 16 mai 1973 est intervenu pour interdire la pollution des eaux par les navires. Le texte pose une interdiction générale sanctionnée par des amendes et des emprisonnements. L'article 1 de la loi dispose que "sera puni d'une amende de 10 000 à 100 000 francs et d'un emprisonnement de trois mois à deux ans, ou de l'une de ces deux peines seulement, et en cas de récidive du double de ces peines, tout capitaine d'un bâtiment français (national) non soumis aux dispositions de la convention internationale qui se sera rendu coupable d'infraction de rejet en mer d'hydrocarbures ou de mélange d'hydrocarbures. Le texte est large en incluant dans son champ d'application les navires non soumis à la convention internationale, mais sa faiblesse est qu'il ne soumette cette interdiction aux capitaines étrangers. Dans le cas des Comores, c'est cette hypothèse exclue qui présent un intérêt actuel, la plupart du trafic des hydrocarbures étant assuré par des navires étrangers.

La réglementation existante en matière de pollution de la mer est insuffisante compte tenu de ce décalage entre la réalité et la législation en vigueur. La nécessité d'une réglementation adéquate s'avère urgente, compte tenu du trafic important qui s'effectue dans les zones limitrophes des Comores. Toutefois, il faut noter qu'une prise de conscience des risques de pollution marine s'est affirmée dans la loi no. 82-005 relative à la délimitation des zones maritimes comoriennes. L'article 7-8 de la loi donne la juridiction à l'Etat comorien des problèmes "de la préservation du milieu marin et de la prévention de la pollution de la mer."

L'étude entreprise a permis de constater l'étendue, la diversité, en même temps que l'insuffisance de la législation relative au domaine public et à sa protection; elle a également permis de mesurer le vide législatif qui existe dans certains domaines pourtant essentiels (pollution des eaux par les navires, par exemple).

Il faut agir vite pour prévenir les risques de dégradation du domaine public qui reste intact aujourd'hui, malgré l'insuffisance des protection légales. Certaines activités jusqu'à présent insignifiantes sont appelées a prendre de l'importance. Le tourisme, avec l'implantation de nouvelles chaînes hotelières, l'agrandissement du port de Mutsamudu, les programmes des pêches en haute mer, tout cela peut engendrer des problèmes d'environnement qui méritent l'attention des pouvoirs publics.


43°
44°
45°
Mitsamiouli
Chezani
Ivembeni
GRANDE
COMORE
Hahaia
Koumbani
Iles Comores
N
Moroni
Bandamadji
Fombeni
Dembeni
12°
12°
Ouani
Mutsamudu
Bambao
Sima
ANJOUAN
M'Remani
Capitale
Autres Villes
Ports
Aéroports
Canal du
MOHELI
Fomboni
Nioumachoua
Ile Canzoni
Ile Ovenefou
Mozambique
40°
44°
48°
GRANDE
COMORE
ANJOUN
MOHELI
MAYOTTE
12°
MOZAMBIQUE
Canal du Mozambique
MADAGASCAR
0
20
40
60
MAYOTTE
Baie de Longoni
Baie
de Soulou
Dzaoudzi
Baie de
Boueni
13°
44°
45°

RAPPORT NATIONAL FRANCAIS (LA REUNION) :
par
M. Jardin sur la base des travaux de P. Jeanson

INTRODUCTION

La Réunion, département français d'outre mer, est une île d'une superficie de 2 512 km2; elle présente une longueur de côtes de 207 km dont 25 km de lagon et 30 km de plage.

La population côtière est d'environ 460.000 habitants (estimation 1981). Les dix-neuf villes côtières se répartissent de la façon suivante:

- une ville de plus de 100.000 habitants
- deux de 50 à 100.000
- neuf de 10 à 50.000
- sept de moins de 10.000 habitants

Les trois ports principaux sont Port des Galets, port de commerce, de plaisance et de grande pêche, Saint-Gilles et Saint-Pierre, ports de petite pêche et de plaisance. On compte 634 inscrits maritimes.

Le débit des rivières est le suivant:

- Bras de la Plaine : 6 à 200 m3/s
- Bras de Cilaos : 3 à 220 m3/s
- Saint-Denis : 0,8 à 350 m3/s
- Des Marsoins : 5 à 550 m3/s
- Des Roches : 5 à 750 m3/s
- De L'Est : 6 à 900 m3/s
- Des Galets : 2,6 à 950 m3/s
- Du Mât : 8 à 1700 m3/s

Les deux principales sources de pollution sont les émissions volcaniques et les flux provenant des industries sucrières (estimées à 1.050.000 équivalent habitant).

Il n'y a pas de cabotage; l'importation et l'exportation se répartissent comme suit:

Denrées importées (chiffre 1981) en tonnes:

- Viandes et poissons: 5.700
- Laitages : 5.400
- Fruits : 7.500
- Mais - Riz : 82.000

- Huiles végétales : 5.600
- Eaux : 9.000
- Vins : 9.000

Exportées:

- Sucre : 175.000
- Mélasse : 30.000
- Rhum : 36.500 (hl)
- Essence de Vetyver : 13
- Vanille : 15
- Géranium : 45
- Tabac : 85

Parmi les activités d'exploration on mentionnera la campagne du sous-marin Marion Dufresne (11 août - 10 septembre 1982) et parmi les programmes d'études achevées ou en cours, ceux portant sur la bathymétrie, l'hydrologie des eaux superficielles, l'inventaire des espèces d'intérêt économique, la morphologie des pentes sous-marines du volcan, l'inventaire systématique de la faune.

Mayotte, collectivité territoriale française, est un archipel volcanique, d'une superficie de 374 km2; il comprend une île principale, une petite île où se trouve la capitale, Dzaoudzi, et quelques îlots. La population, de 50.400 est essentiellement côtière. Les quatre principales villes côtieres sont Dzaoudzi, seul port abrité praticable toute l'année, Mamutzu, Chingoni et Bandélé. L'essentiel des relations se fait par cabotage. Les principales productions sont la vanille, le ylang-ylang, le café et le coprah.

ASPECTS INTERNATIONAUX

Les conventions internationales suivantes et leur protocoles et amendements s'appliquent pour les territoires français de l'Océan Indien, y compris l'Ile de la Réunion et Mayotte:

1. La Convention internationale pour la prévention de la pollution des eaux de la mer par les hydrocarbures Ratifiée par la France le 26 juillet 1957. Amendements de 1962 à 1969: respectivement ratifiée le 29 avril 1963 et le 4 février 1972.

2. Amendements de 1971 à la Convention internationale de 1954 pour la prévention de la pollution des eaux de la mer par les hydrocarbures: ratifiés le 24 mars 1975. La Convention de Londres et ses amendements sont appliqué en droit français par la loi de 1964 - No. 64-1331 - réprimant la pollution des eaux de la mer par les hydrocarbures, modifiée par les lois du 16 mai 1973 - No. 73.477 - et du 2 janvier 1979 - No. 79.5.

3. Convention internationale pour la prévention de la pollution par les navires, Londres 1973; et

4. Protocole relatif à la Convention internationale pour la prévention de la pollution par les navires, Londres 1978; ratifiés le 25 septembre 1981. Bien que non entrés en vigueur, la Convention de 1973 et son protocole sont appliqués en droit français par le décret du 24 mars 1968 et la loi 79-1 du 2 janvier 1979 relatives à certaines infractions en matière de circulation maritime.

5. Règles internationales pour prévenir les abordages en mer, Londres 1960;

6. Amendements de 1972 aux Règles internationales de 1960 pour prévenir les abordages en mer; Ratifiés le 15 juillet 1977 Ces textes sont appliqués en droit français par le Code disciplinaire et pénal de la marine marchande, en particulier par la loi du 2 janvier 1979 précitée.

7. Convention internationale pour la sauvegarde de la vie en mer, Londres 1974, et;

8. Protocole international relatif a la Convention internationale pour la sauvegarde de la vie en mer, Londres 1978; Ratifiés respectivement le 25 mai 1977 et le 25 mai 1981. Appliqués en droit français par la législation sur la sauvegarde de la vie en mer, notamment la loi du 20 mai 1967.

9. Convention internationale sur l'intervention en haute mer en cas d'accident entrainant ou pouvant entraîner une pollution par les hydrocarbures, Bruxelles, 1969; Ratifiée le 10 mai 1972. Appliquée en droit français par la loi du 7 juillet 1976 relative aux opérations d'immersion et à la lutte contre la pollution marine accidentelle (article 16).

10. Protocole sur l'intervention en haute mer en cas de pollution par des substances autres que les hydrocarbures, Londres 1973; Non ratifié.

11. Convention internationale sur la responsabilité civile pour les dommages dus à la pollution par les hydrocarbures, Bruxelles 1969; Ratifiée le 19 juin 1975. Appliquée en droit français par la loi du 26 mai 1977 relative à la responsabilité civile et à l'obligation d'assurance des propriétaires de navires pour les dommages résultant de la pollution par les hydrocarbures.

12. Convention international portant création d'un fonds international d'indemnisation pour les dommages dus à la pollution par les hydrocarbures, Bruxelles 1971; Ratifiée le 11 mai 1978.

13. Convention internationale sur la responsabilité des exploitants de navires nucléaires, Bruxelles 1962; Non-ratifiée, mais appliquée partiellement par la loi du 12 novembre 1965 sur la responsabilité civile des exploitants de navires nucléaires.

14. Convention relative à la responsabilité civile dans le domaine du transport maritime de matières nucléaires, Bruxelles 1971; Ratifiée le 2 février 1973. Appliquée également en droit français par la loi du 12 novembre 1965 (précité).

15. Convention internationale sur la limitation de la responsabilité des propriétaires de navires de mer, Bruxelles 1957; Ratifiée le 6 décembre 1959. Appliquée en droit français par la loi du 26 mai 1977 (précitée).

16. Protocole amendant la Convention internationale sur la limitation de la responsabilité des propriétaires de navires de mer, Bruxelles 1979;

17. Convention sur la limitation de la responsabilité en matières de créances maritimes, Londres 1976; Ratifiée avec réserves le 11 juillet 1981.

18. Convention sur la haute mer, Genève, 1958; Non signée.

19. Convention sur le plateau continental, Genève 1958; Ratifiée le 29 novembre 1965. Appliquée en droit français à par la loi du 30 décembre 1968 relative à l'exploitation du plateau continental et à l'exploitation de ses ressources naturelles.

20. Convention internationale pour la prévention de la pollution des mers résultant de l'immersion de déchets, Londres 1972; Ratifiée le 3 Mai 1979. Appliquée en droit français par la loi du 7 juillet 1976 relative aux opérations d'immersion (précitée).

21. Traité sur l'interdiction des essais d'armes nucléaires dans l'atmosphère, dans l'espace extra-atmosphérique et sous l'eau, Moscou 1963; Non signé.

22. Traité interdisant de placer des armes nucléaires et d'autres armes de destruction massive sur le fond des mers et des océans ainsi que dans leur sous-sol, Washington, Londres, Moscou 1971; Non signé.

23. Convention sur l'interdiction d'utiliser des techniques de modification de l'environnement à des fins militaires ou toutes autres fins hostiles, Genève, 1977; Non signée.

24. Convention africaine sur la conservation de la nature et des ressources naturelles, Alger 1968; Non signée.

25. Convention sur la conservation des espèces migratrices appartenant à la faune sauvage, Bonn 1979; Signée. En cours de ratification.

26. Convention sur le commerce international des espèces sauvages de faune et de flore menacées d'extinction, Washington 1973; Ratifiée en août 1978. Appliquée en droit français dès la ratification; deux textes spécifiques ont en outre été pris, un arrêté de septembre 1979 sur le commerce de l'ivoire, un arrêté de janvier 1983 destiné à faciliter le contrôle aux douanes françaises.

27. Convention des Nations Unies sur le Droit de la Mer, New-York, Kingston 1982; Signée par la France qui ne l'a pas encore ratifiée.

28. Charte de l'Organisation de l'Unité africaine, Addis Abeba 1963; Non signée.

La France à signée, le 10 décembre 1982, la convention sur le Droit de la mer, mais n'a pas encore entamé la procédure de ratification. Celle-ci dépendra des négociations en cours à la Commission préparatoire sur le régime d'exploitation des grands fonds marins (partie XI), ainsi que l'a expliqué le Ministre de la Mer M. Le Pensec, lors de la signature.

En ce qui concerne la partie XII, elle correspond pour l'essentiel à la reprise de dispositions déjà en vigueur et que la France applique déjà.

Les dispositions nouvelles sont jugées par la France comme un compromis satisfaisant entre les droits des Etats côtiers et les aspirations des puissances maritimes. La France y souscrit donc, malgré une difficulté posée par l'article 230, moins contraignant que la législation nationale: cet article prévoit en effet des sanctions pénales applicables en cas de dommages intentionnels et graves dans les eaux territoriales, alors que la législation française prévoit que ces sanctions sont applicables en case d'infraction délibérée ou grave, législation qui s'étend aux navires étrangers.

Enfin, la France a, dès 1976, transcrit les dispositions relatives à la zone économique (loi du 16 juillet 1976 relative à la zone économique au large des côtes du territoire de la République). Cette loi, appliquée par décret, est en vigueur pour l'ensemble du territoire métropolitain et d'outre-mer, sauf la Méditerranée. Elle s'applique donc pour les territoires français de l'Océan Indien.

La France à d'ores et déjà passé un certain nombre d'accords bilatéraux en matière d'environnement, et s'attache actuellement à renforcer la prise en compte de l'environnement dans sa politique de coopération. C'est ainsi qu'est mis sur pieds actuellement un plan sectoriel "environnement-développement" qui à pour objet de mieux mobiliser le potentiel français pour répondre à la demande des pays en développement en matière d'environnement. Cinq thèmes sont pris en compte: eau, déchets, conservation, zones côtières, érosion des sols.

Les premiers accords formels en matière d'environnement ont concerné l'Afrique de l'Ouest (Côte d'Ivoire, Nigéria, etc.) et il n'y à pas encore d'accord formel dans l'Océan Indien. Toutefois, un début de coopération en matière d'environnement avec la République des Seychelles peut être mentionné, ainsi que des accords entre chercheurs et enseignants français et malgaches.

ASPECTS NATIONAUX

1. Pollution marine provenant des rejets d'hydrocarbures par les navires:

Répression de la pollution

La répression de la pollution par les hydrocarbures est assurée par la loi du 26 décembre 1964 qui à été modifiée par les lois du 16 mai 1973 et la loi du 2 janvier 1979.

La loi de 1964 modifiée soumet les navires de faible tonnage aux dispostions de Convention de Londres de 1954 qui ne leur était pas applicable, dès lors qu'il sont équipés d'une puissance de propulsion supérieure à un chiffre fixé par décret (200 chevaux, décret du 5 mai 1964).

La dernière modification apportée à la loi de 1964 par la loi du 2 janvier 1979, adoptée à la suite de l'échouement de l'Amoco-Cadiz, à considérablement relevé le niveau des peines applicables en case de rejets illicites d'hydrocarbures:

- amende de 500.000 F à 5.000.000 F et emprisonnement de un à cing ans si le navire est soumis à la Convention de Londres de 1954;

- amende de 100.000 F à 1.000.000 F et emprisonnement de six mois à deux ans pour les navires de plus de 200 chevaux non soumis à la Convention de Londres de 1954.

La personne pénalement responsable est le capitaine. Toutefois, les mêmes peine sont applicables au propriétaire ou à l'exploitant du navire qui est considéré comme complice s'il n'a pas donné au capitaine l'ordre écrit de se conformer aux dispositions de la Convention de Londres et de la loi de 1964. En outre si l'infraction à été commise sur l'ordre du propriétaire ou de l'exploitant, celui-ci peut se voir condamner au double de ces peines.

D'autre part, la loi du 2 janvier 1979 apporte deux innovations importantes.

Tout d'abord, elle institue un délit de pollution involontaire des eaux territoriales lorsque celle-ci résulte d'un accident trouvant son origine dans une imprudence, une négligence ou une inobservation des lois et règlements. Les sanctions applicables sont celles précédemment citées en tenant compte de la distinction entre navires soumis à la convention de Londres et navires qui n'y sont pas soumis. La personne responsable pénalement est celle à qui est imputable l'imprudence, la négligence ou l'inobservation des lois et règlements qu'il s'agisse du capitaine, de l'armateur ou de toute autre personne. Toutefois, ne sont pas sanctionnables à ce titre, les rejets accidentels consécutifs à des mesures prises pour éviter un danger grave et imminent menaçant la sécurité des navires, la vie humaine ou l'environnement.

En second lieu, le navire qui à servi à commettre un délit de pollution par hydrocarbures peut être immobilisé sur décision du procureur de la République ou du juge d'instruction jusqu'à ce qu'il soit fourni un cautionnement garantissant la représentation de l'inculpé au procès, et le paiement des amendes encourues. Ainsi, par le biais de la caution fournie par l'armateur pour libérer son navire, celui-ci peut être amené à supporter en tout ou en partie le coût de l'amende prononcée contre le capitaine.

Conditions de navigation

La loi du 2 janvier 1979 modifie la réglementation en matière de circulation maritime. Elle prévoit:

- une amende de 500 à 50.000 F et un emprisonnement d'un mois à deux ans pour le capitaine de tout navire qui dans les eaux territoriales n'aura pas respecté les règles de circulation dans les dispositifs de séparation du trafic ou les distances minimales de passage le long des côtes françaises fixées par les préfets maritimes;

- une amende de 50.000 à 1.000.000 F et un emprisonnement d'un mois à deux ans si l'infraction est commise par un navire transportant des hydrocarbures ou d'autres substances dangereuses définies par le décret du 7 août 1979 (voir ci-dessous).

Information des autorités maritimes

Le décret du 24 mars 1978 relatif à la lutte contre la pollution marine accidentelle fait obligation au capitaine de tout navire transportant des hydrocarbures de signaler au préfet maritime son entrée dans les eaux territoriales ainsi que tout incident ou accident qui aurait pour conséquence des dommages matériels ou une menace de dommages matériels pour un navire ou sa cargaison. Cette dernière obligation incombe au capitaine dès que le pétrolier se trouve à moins de 50 milles des côtes.

Enfin, le décret du 24 mars 1978 impose également à tout navire se portant à l'aide d'un pétrolier victime d'un accident ou d'un incident à moins de 50 milles du littoral de prévenir le préfet maritime et de le tenir informé du déroulement de son intervention.

Dans les eaux territoriales la loi No. 79-1 du 2 janvier 1979 relative à certaines infractions en matière de circulation maritime déjà citée étend les obligations édictées par le décret du 24 mars 1978 aux navires transportant des substances dangereuses définies par le décret du 7 août 1979, c'est à dire les substances nocives classées en catégorie A et B dans l'annexe II de la convention de Londres de 1973 sur la prévention de la pollution par les navires, en y ajoutant notamment certaines substances radioactives, les gaz liquifiés et certaines matières transportées en vrac présentant un risque important de toxicité, d'incendie ou d'explosion.

La loi de 1979 sanctionne en outre les capitaines qui négligent d'informer le préfet maritime, d'une amende de 100.000 F à 500.000 F et d'une peine de prison d'un mois à deux ans. Le navire peut être retenu au port jusqu'à versement d'une caution.

Droit d'intervention

La convention de Bruxelles de 1969 applicable en haute mer à été complétée par l'article 16 de la loi du 7 juillet 1976 relative aux opérations d'immersion et à la lutte contre la pollution marine accidentelle. Cette disposition applicable dans les eaux territoriales ou intérieures maritimes française permet à l'Etat d'intervenir dans les mêmes conditions que la convention de 1969. Toutefois, le droit d'intervention n'est plus limité aux cas de pollution par les hydrocarbures et l'intervention s'effectue aux frais du propriétaire du navire accidenté ou en avarie.

2. Pollution marine provenant de l'exploration et de l'exploitation des ressources de la mer:

Législation sur la pêche

La texte fondamental en matière de pêche maritime est le décret du 9 janvier 1852 1/ modifié sur la pêche maritime côtière. Ses dispositions ont été étendues à la zone économique par la loi du 16 juillet 1976 relative à la zone économique au large des côtes du territoire de la République.

Deux dispositions du décret de 1852 présentent un grand intérêt dans le domaine de la pollution marine:

1/ Malgré son intitulé, il s'agit d'un texte de valeur législative qui ne peut être modifié que par une loi.

- son article 18 prévoit que si les infractions qu'il réprime ont été commises en mer et s'il s'agit d'un navire étranger, elles seront portées "devant le tribunal du premier port où ce navire sera conduit", ce qui implique qu'un navire étranger en infraction peut être conduit dans un port français pour y être jugé.

- son article 7 santionne d'une amende de 600 à 1.000 F le non respect des dispositons spéciales établies par les règlements pour prévenir la destruction du frai ou assurer la conservation du poisson et du coquillage.

Parmi les dispositions spéciales prises en application de cet article 7 figure le décret du 28 décembre 1912 qui interdit de rejeter dans les eaux de la mer ou dans les eaux salées où la réglementation relative à la pêche maritime est applicable, toutes substances solides ou liquides suceptibles de nuire à la conservation des poissons, crustacés ou mollusques ou de les rendre impropres à la consommation.

Exploitation des ressources minérales

La loi du 30 décembre 1968 relative à l'exploration du plateau continental et à l'exploitation de ses ressources naturelles, modifiée par la loi du 11 mai 1977, soumet à autorisation préalable toute activité de recherche ou d'exploitation de substances minérales ou fossiles (sables et graviers ou hydrocarbures). Cette activité est soumise aux dispositions du code minier applicable aux mines et l'autorisation est constituée par un titre minier : permis exclusif de recherche permis d'exploitation ou concession de mine.

Depuis la loi du 16 juin 1977 modifiant le code minier, les titres miniers peuvent comporter des dispositons pour la protection des eaux de la mer. De plus, le décret du 6 mai 1971 pris pour l'application de la loi de 1968 permet au préfet de soumettre l'exécution des travaux à des conditions particulières pour prévenir les accidents et préserver l'environnement.

L'article 28 de la loi impose avant toute opération d'exploitation qu'un état écologique et biologique du milieu marin soit dressé et renouvelé au moins une fois par an au cours de la durée de validité du titre d'exploitation.

Les travaux d'exploitation de sables et graviers sont soumis aux dispositions suivantes:

- les rejets résultant directement des opérations d'exploration doivent être exempts d'hydrocarbures;

- les rejets résultant directement des opérations d'exploitation y compris le stockage ne peuvent avoir une teneur moyenne en hydrocarbures supérieure à 20 ppm, ni avoir pour effet de déverser dans la mer un volume moyen d'hydrocarbures supérieur à 2 cl par jour et par hectare de la surface du titre d'exploitation.

Le non respect de ces prescriptions est sanctionné d'une amende de 10.000 à 120.000 F et d'un emprisonnement de trois mois à deux ans. Toutefois, l'infraction n'est pas constitutée si toutes les mesures necessaires au respect des conditions précitées ayant été prises, le rejet est effectué pour assurer la sécurité de l'installation ou provient d'une avarie ou d'une fuite imprévisible et impossible à éviter et si toutes les mesures ont été prises après pour l'arrêter ou en limiter les conséquences.

La personne pénalement responsable est celle qui assure directement sur place la conduite des travaux. Le représentant du titulaire du titre minier ayant la responsabilité des opérations est passible des mêmes peines que celui qui assume la conduite des travaux, s'il ne lui a pas donné l'ordre écrit de se conformer aux dispositions de la loi et du double de ces peines si l'infraction à été commise sur son ordre.

Les rejets d'hydrocarbures, qui ne sont pas liés aux activités d'exploration ou d'exploitation, sont soumis aux dispositions de la loi du 26 décembre 1964 réprimant la pollution des eaux de la mer par les hydrocarbures.

3. Pollution d'origine tellurique

L'arsenal des mesures prises en France pour lutter contre la pollution d'origine tellurique est constitué de textes extrêmement nombreux, parfois fort anciens.

Cet ensemble, à bien des égards hétéroclite, s'organise autour des thèmes suivants:

- protection en général des eaux, qu'il s'agisse des eaux douces ou de la mer, contre la pollution due aux rejets;

- mesures particulières visant certaines sources de pollution - rejets d'origine urbaine - rejets d'origine industrielle. Certaines de ces mesures allant jusqu'à prendre en compte des types précis de polluants (le mercure, les détergents, les hydrocarbures, etc.);

- mesures de protection de certains usages de la mer : la pêche, la conchyliculture, la baignade, etc.

Ces thèmes caractérisent l'originalité du système normatif français qui en permanence permet à l'administration d'intervenir à la fois au niveau des sources de pollution - police des rejets - et au niveau de leurs effets sur le milieu - police de la qualité des eaux.

Sur le plan administratif il était essentiel que ces deux polices s'exerçent de manière homogène. A cet égard, la solution à consisté dès l'origine principalement à la mise en place de mécanisme de coordination des différents services concernés. Sans y renoncer, un pas nouveau à été franchi dans ce domaine. Un décret du 29 novembre 1976 place désormais sous une autorité unique, celle du Ministre chargé de l'Environnement, la responsabilité d'exercer l'ensemble de la police des rejets, qu'il s'agisse des eaux douces ou de la mer. Les autres ministres conservent la police de certains usages, par exemple la police de la pêche maritime (Ministre de la Mer), salubrité des plages (Ministre de la Santé), gestion du domaine public maritime (Ministre de la Mer), le Ministre chargé de l'Environnement étant chargé par ailleurs de la police des installations classées.

Lutte contre la pollution tellurique en général

Le texte de base est la loi du 16 décembre 1964 relative au régime et à la répartition des eaux et à la lutte contre leur pollution. Son champ d'application s'étend aux eaux territoriales. Elle pose le principe de l'interdiction des rejets en mer sauf autorisation délivrée par le Préfet. Elle institue un mécanisme d'incitation économique à la réduction de la pollution des eaux qui se traduit par la création des agences financières de bassin qui perçoivent des redevances en relation avec les pollutions émises par les personnes publiques ou privées et attribuent des subventions pour les travaux conduisant à une réduction de la

Le décret du 21 février 1973 portant application de la loi du 16 décembre 1964 fixe la procédure de délivrance des autorisations: en outre, deux arrêtés du 13 mai 1975 pris pour son application précisent l'un, les conditons dans lesquelles certains déversements de nocivité négligeable peuvent être exemptés d'autorisation et l'autre les conditions entraînant la consultation d'organismes particuliers au niveau du bassin et, au plan national, avant la délivrance de l'autorisation. Enfin un arrêté du 20 novembre 1979 relatif à la lutte contre la pollution des eaux fixe, en application du décret du 23 février 1973, les conditions techniques générales auxquelles sont subordonnées les autorisations.

Il faut en outre signaler:

- le décret du 15 décembre 1967 sanctionnant les infractions à la loi de 1964 (amende de 1.000 à 2.000 F);

- le décret du 31 décembre 1974 relatif aux rejets d'effluents radioactifs liquides et deux arrêtés du 10 août 1976 pris pour son application;

- le décret du 12 mars 1975 fixant les conditions dans lesquelles sont effectués le contrôle des eaux réceptrices et des déversements;

- le décret du 8 mars 1977 relatif à la réglementation du déversement des huiles et lubrifiants dans les eaux superficielles, souterraines et de mer. Ce décret pose le principe de l'interdiction du deversement de certaines catégories d'huiles et lubrifiants;

- le décret du 28 décembre 1977 relatif à l'interdiction du déversement de produits détergents dans les eaux superficielles, souterraines et de mer;

- le circulaire du 1er octobre 1975 relative aux ouvrages d'épuration littoraux et aux rejets en mer des effluents qui précise qu'aucun rejet ne devrait avoir lieu sans traitement primaire préalable et fixe des nombres guides qui servent d'indicateurs de qualité du milieu en zone de baignade et en zone conchylicole.

<u>Installations classées</u>

La loi du 19 juillet 1976 et le décret du 21 septembre 1977 relatifs aux installations classées pour la protection de l'environnement s'appliquent aux installations présentant des dangers ou des inconvénients pour le voisinage, la santé, la securité, la salubrité et la protection de la nature et de l'environnement et définies dans la nomenclature des installations classées. Celles-ci sont soumises à autorisation ou à déclaration suivant l'importance des inconvénients qu'elles présentent.

Les autorisations "installations classées" qui ont pour objet de réglementer le fonctionnement de l'installation sont délivrées de façon coordonnée avec les autorisations de déversements dans le milieu aquatique délivrées en application de

De nombreuses circulaires et instructions ont été élaborées pour fixer les conditions particulières à imposer à différentes catégories d'activités soumises à autorisation et des arrêtés types précisent les conditions générales à imposer, pour chaque département, par arrêté préfectoral, aux installations soumises à déclaration.

Santé

Le réglement sanitaire départemental type publié au J.O. par circulaire du 9 août 1978, intéresse notamment l'évacuation des eaux usées et les ouvraqes d'assainissement dans les locaux d'habitation ainsi que diverses mesures générales de salubrité.

Il interdit notamment de déverser dans la mer ou les cours d'eaux toutes matières usées, tous résidus fermentescibles, toutes substances toxiques ou inflammables susceptibles de constituer un danger ou une cause d'insalubrité (article 90). Il prévoit également les équipements sanitaires qui doivent équiper les ports de plaisance en fonction du nombre de postes d'amarrage.

La circulaire du 10 juin 1976 relative à l'assainissement des agglomérations et à la protection sanitaire des milieux récepteurs, traite des différents systèmes d'évacuation des effluents urbains, des procédés d'épuration et des mesures générales de protection des milieux récepteurs.

Enfin, l'arrêté du 7 mai 1974 relatif à la propreté des plages et zones littorales fréquentées par le public y interdit tout déversement ou dépôt, prévoit que les liquides résiduaires doivent en principe, dans ces zones, être envoyés dans un réseau d'assainissement et interdit le stationnement et la pratique de l'equitation sur les plages pendant leurs périodes de fréquentation.

4. La protection de la nature, les parcs marins et cotiers

Le texte principal est la loi du 10 juillet 1976 sur la protection de la nature. Cette loi fixe le principe selon lequel la protection de l'environnement est d'intérêt général, et couvre aussi bien la protection des espaces naturels, et des paysages, la préservation des espèces animales et végétales, la maintien des équilibres biologiques, la protection des ressources naturelles.

En outre, la loi de 1976 institue en France l'obligation de procéder à des études d'impact pour les travaux ou les project d'aménagement qui ont des répercussions sur l'environnement.

Le décret du 12 octobre 1977, pris en application de la loi, traite du contenu de l'étude, de son champ d'application, de la responsabilité du maître d'ouvrage, des conditions de la publicité et des modalités de contrôle administratif et juridictionnel.

Enfin, douze circulaires d'application de ce décret ont été prises, par type d'aménagement.

En ce qui concerne la protection des espaces naturels, deux systèmes complémentaires sont en vigueur:

- la création de parcs est prévue par la loi du 22 juillet 1960, "lorsque la conservation de la faune, de la flore, du sol, du sous-sol, de l'atmosphère, des eaux et en général d'un milieu naturel présente un intérêt spécial et qu'il importe de la préserver contre tout effet de dégradation".

Les parcs comprennent deux catégories de territoire, le parc proprement dit et la zone périphérique.

Il n'y à pas, à l'heure actuelle de législation spécifique pour les parcs marins:

- les critères pour le création de réserves sont énumérés par la loi du 10 juillet 1976, précitée, tandis que la notion de réserve était introduit dans le droit français dès 1957, en modifiant la loi du 2 mars 1930 sur les sites classés.

La protection du littoral fait en outre l'objet de dispositions spécifiques:

- création du conservatoire de l'espace littoral et des rivages lacustres, en 1975, qui mène une politique d'acquisition foncière des espaces les plus fragiles. Il faut signaler à cet égard que le conservatoire a acquis à la Réunion cinq terrains, de taille très variable (de 4 à 360 ha).

- les schémas d'aptitude et d'utilisation de la mer, qui ont pour objet de fixer les grandes lignes de l'aménagement des régions littorales.

- enfin, la directive de protection et d'aménagement du littoral approuvée par décret du 25 août 1979, qui contient un ensemble de mesures pour un aménagement plus cohérent et plus respectueux de la notion de l'espace littoral, notamment en évitant le développement d'un linéaire urbain, en interdisant les constructions dans les espaces naturels, en exerçant un contrôle accru (études d'impact) pour les opérations d'endigage ou d'assèchement des zones humides.

Les textes mentionnés ci-dessus concernent évidemment au premier chef les aménagements touristiques sur le littoral.

INSTITUTIONS

La France à été un des premiers pays à créer un ministère autonome de la protection de l'environnement. L'Environnement à été successivement un Ministère délégué auprès du Premier Ministre (1971), puis un département ministériel autonome en 1973. La réorganisation ministérielle qui à fait suite à l'élection du Président de la République en mai 1981 à mis en place un Ministère de l'Environnement, devenu depuis un Secretariat d'Etat auprès du Premier Ministre.

Les attributions du Ministre chargé de l'environnement ont été fixées par le décret 71-94 du 2 février 1971 complété ultérieurement par divers textes. Selon les termes du décret (No. 81-648) du 5 juin 1981, le Ministre de l'Environnement "est chargé d'assurer la protection des sites naturels, la qualité de l'environnement, la prévention, la réduction ou la suppression des pollutions, nuisances et risques que peuvent entrainer pour l'environnement les équipements et les grands aménagements, les activités agricoles, commerciales ou industrielles, et les activités des particuliers. Il est, en outre, chargé de favoriser les actions d'initiation, de formation et d'information des citoyens en matière d'environnement en liaison avec les associations concernées."

L'administration centrale de l'environnement comprend:

- la Direction de la Prévention des Pollutions, chargée de promouvoir une politique de bonne gestion des milieux naturels: l'eau, l'air et le sol, en vue de réduire et, si possible, de supprimer les pollutions et les nuisances engendrées par les activités humaines comme l'industrie, l'agriculture, les transports, le développement urbain ou le tourisme.

- la Direction de la Protection de la Nature, responsable de la protection de la faune et de la flore et des questions relatives aux parcs nationaux, aux parcs naturels régionaux et aux réserves naturelles. A ce titre, elle assure le Secrétariat du Comité interministériel des parcs nationaux et de la Commission interministérielle des parcs naturels régionaux. Elle est chargée des attributions relevant de la compétence du Ministre de l'Environnement en matière de chasse, de pêche et d'hydrobiologie.

- la Délégation à la Qualité de la Vie, chargée d'étudier, proposer et, le cas, échéant, mettre en oeuvre les mesures concourant à la qualité de la vie, notamment protéger et améliorer l'environnement, et développer la vie associative. Elle est en outre chargée, avec la collaboration des directions intéressées, de l'application du décret du 12 octobre 1977 pour ce qui concerne la définition du contenu des études d'impact et l'examen de celles que le Ministre à décidé d'évoquer.

Le Ministre de l'Environnement dispose, en outre, de directions et missions placées sous l'autorité du Ministre de l'Urbanisme et du Logement, et en particulier de:

- La Direction des Affaires Economiques et Internationales, qui est chargée des affaires internationales en matière d'environnement. Elle élabore et met en exécution les programmes de coopération technique.

- La Mission des Etudes et de la Recherche, qui travaille en liaison avec le Ministère de la Recherche et de l'Industrie et avec les services intéressant l'environnement, l'urbanisme et le logement. Elle suit la mise en oeuvre des actions de recherche en matière d'environnement (eau, air, sol, bruit...) et la diffusion de leurs résultats. Elle conduit également des travaux de prospective.

- la Direction de l'Urbanisme et des Paysages, où le Service de l'Espace et des Sites a pour mission de protéger et mettre en valeur les sites et les paysages naturels et urbains.

Au niveau local, un chargé de mission pour l'environnement est placé auprès du Commissaire de la République à la Réunion, et les services d'autres Ministères, la Direction Départementale de l'Agriculture, de la Santé, de l'Equipement, de l'Industrie sont à la disposition du Ministère de l'Environnement en tant que de besoin. Enfin il faut également mentionner les travaux effectués par le Muséum d'Histoire Naturelle et par l'Université de Saint-Denis.

CONCLUSION

L'objectif du législateur qui était d'appréhender la pollution marine par les différentes sources de pollution peut être considéré comme largement atteint. En outre, les accidents graves de pétroliers dont les côtes françaises ont eu à souffrir ces dernières années ont amené le gouvernement français à promouvoir l'application des conventions internationales en la matière.

Le rôle des pouvoirs publics à été renforcé: élargissement des domaines où l'octroi d'autorisations préalables est nécessaire, intervention accrue en matière de contrôle de la pollution.

Enfin, une série de mesures récentes a eu pour objectif, non plus de lutter contre les pollutions, mais de réglementer soigneusement l'aménagement du littoral et la protection de ses sites.

Il faut aussi mentionner l'importante réforme du doit français amorcée par la loi du 7 janvier 1983 sur la décentralisation, et notamment son chapitre VI sur la sauvegarde du patrimoine et des sites. Certaines compétences sont ainsi transférées aux collectivités locales en matière d'aménagement et une loi particulière porte organisation des départemen s d'Outre-Mer. Il est encore trop tôt pour dire quelles conséquences cette réforme fondamentale aura sur la gestion de l'environnement. Toutefois l'affirmation par les autorités françaises à plusieurs reprises du caractère d'intérêt général pour la collectivité toute entière de la gestion de l'environnement et de la protection des sites peut laisser présager qu'une large partie des compétences en matière d'environnement restera au niveau national.

Les pièces suivantes ont été jointes au rapport::mais le manque d'espaces nous a empeches de les reproduire.

Loi du 26 décembre 1964 No 64-1331 (J.O. 29 décembre 1964 p. 11.791 et 11.792), modifiée par les lois du 16 mai 1973 No 73.477 (J.O. du 17 mai 1973) et du 2 janvier 1979 No 79.5 (J.O. du 3 janvier 1979)

Décret du 24 mars 1978 No 78-421 (pollution marine) (J.O. du 26 mars 1978)

Loi du 2 janvier 1979 No 79-1 (J.O. du 3 janvier 1979)

Loi du 20 mai 1967 No 67.405 (J.O. du 21 mai 1967)

2 Lois du 7 juillet 1976 (immersions) No 76-599 et No 76-600 (J.O. du 8 juillet 1976)

Loi du 26 mai 1977 No 77-530 (J.O. du 27 mai 1977)

Loi du 30 décembre 1968 No 68-1181 (J.O. du 31 décembre 1968)

Loi du 11 mai 1977 No 77-485 (J.O. du 12 mai 1977)

Loi du 12 novembre 1965 No 65-956 (J.O. du 13 novembre 1965) lois No 65-954 et 65-955 du 12 novembre 1965.

Décret du 13 janvier 1983 No 83-17 (J.O. du 14 janvier 1983)

Loi du 19 juillet 1976 No 76-663 (installations clasées) (J.O. du 20 juillet 1976)

2 Décrets du 21 septembre 1977 No 77-1133 et 77-1134 (J.O. du8 octobre 1977)

Loi du 10 juillet 1976 No 76-629 (protection de la nature) (J.O. du 13 juillet 1976)

Loi du 31 décembre 1982 No 82-1171 (J.O. du 1er janvier 1983) portant organisation des départements d'outre mer.

Loi du 7 janvier 1983 No 838 (J.O. du 9 janvier 1983)

Loi du 11 septembre 1954, No 54-902 règlementant l'exercice de la pêche maritime dans les départements de la Guadeloupe, de la Martinique, de la Guyane et de La Réunion

Loi No 71-1060 du 24 décembre 1971 relative à la délimitation des eaux territoriales françaises

Loi No 76-655 du 16 juillet 1976 relative à la zone économique au large des côtes du territoire de la République

Décret 78-148 du 3 février 1978 portant création d'une zone économique au large des côtes des départements de La Réunion

Arrêté No 615/IM modifié du 1er juillet 1955 fixant la limite de salure des

Arrêté du 21 juillet 1976 No 2862/DAG.R/2 règlementant l'exercice de la pêche maritime côtière dans les eaux du département de La Réunion, modifié par:

Arrêté du 22 october 1979 No 4319/DAG.R/2

Arrêté du 28 janvier 1983 No 0263/DAG.R/2

Arrêté du 28 juin 1973 No 1948/SGAE.3 organisant le contrôle sanitaire des produits de la pêche maritime à l'importation et à la vente au détail

Arrêté du 20 janvier 1977 No 217/SGAE/DP.1 portant modification de l'Arrêté Préfectoral no 1948/SGAE.3 du 28 juin 1973 organisant le contrôle sanitaire des produits de la pêche maritime à l'importation et à la vente au détail

Arrêté du 25 september 1981 No 4038 SGAE/DP1 portant modification de l'arrêté No 217/SGAE/DP.1 du 20 janvier 1977

Arrêté du 25 mai 1976 No 1905/DAG.R/2 portant institution de réserves dans les eaux maritimes du département de La Réunion, complété par l'Arrêté no 4666/DAG.R/2 du 17 november 1978

Arrêté du 20 janvier 1982 No 333/DAGR/2 complément l'arrêté du 25 mai 1976 No 1905/DAGR/2

Arrêté du 9 juin 1969 No 1486/DAG.1 portant interdiction de lapêche du corail dans les lagons de la Réunion

Arrêté du 25 mai 1976 No 1904/DAG.R/2 portant règlementation de la pêche sous-marine dans les eaux maritimes du littoral du département de La Réunion

Arrêté du 5 décembre 1949 No 1110 P.C. modifié portant règlement pour l'extraction sur le rivage de la mer, des sables, pierres et autres matières non considérés comme amendements marins.

Arrêté du 14 janvier 1974 No 187/SGAE/1/AM portant règlementation des marques extérieures d'identité des navires de pêche côtière du Quartier de La Réunion

Arrêté du 3 janvier 1975 No 11/DAG 2 règlementant la circulation dans les eaux et rades de la Réunion

Arrêté du 28 février 1979 No 801/DAG.R/2 règlementant le mouillage des navires et embarcations en certains points du littoral du Département de La Réunion.

Arrêté du 7 mars 1979 No 801/AM règlementant le mouillage des navires et embarcations en certains points du littoral du Départment de la Réunion

KENYA NATIONAL REPORT : by F. Muslim

INTRODUCTION

Coastline

Kenya has a coastline of 640 km according to the statistics given in a report of the National Council for Science and Technology 1/. The length of the coastline given in this report should be contrasted with that contained in a UNEP Regional Seas report which is shown as 450 km 2/. The latter report does not indicate the source of its data on the length of the coastline especially since the difference between its figure and that contained in Government documents is so significant. The width of the coastal area varies between 15 and 20 km depending on how far a place is from the sea as well as its geological and vegetation characteristics.

Population

The coastal area carries a population of slightly over one million people out of a total population of 1,342,794 2a/ who live in the administrative region called the Coast Province. The coastal population is widely distributed depending on the pattern of human settlements at any particular place, and this is reflected in the population density which varies from less than 100 per kilometre to over 200 in densely populated areas such as Mombasa.

Coastal cities

Mombasa, with a total population of over 341,148, is the most important coastal city not only as an urban centre but also as the gateway to Kenya and Eastern and Central Africa. This is shown by the fact that the landed cargo (both dry cargo and bulk liquids) was 5,470,000 tonnes in 1980, the latest year for which statistics have been published, while loaded cargo was 2,036,000 tonnes bringing the total to 7,506,000 tonnes 3/. Mombasa is also an important tourist centre accounting for most of the 2.5 million bednights recorded in the coastal area tourist establishments in 1981 4/. As an industrial centre in the coastal area, Mombasa, according to the census of Industrial Production, has four mining and quarrying

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1/ Science and technology for development, a Report of the National Council for Science and Technology, May 1980, Nairobi, p. 43.

2/ Marine and coastal area development in the East African Region, UNEP Regional Seas Reports and Studies No. 6 UNEP 1982, paragraph 14, p. 4.

2a/ Statistical Abstract 1980, Central Bureau of Statistics, Republic of Kenya, p. 13.

3/ Economic Survey 1982, Central Bureau of Statistics, p. 196.

4/ Economic Survey 1982, Central Bureau of Statistics, p. 183

establishments, 267 manufacturing establishments and 61 building and construction establishments 5/. Malindi is the next most important city in the coastal area, its significance lying in its tourist trade which is considerable. While there is no industrial activity to speak of, the town serves as an important port with the possibiity that when a decision as to location is finally made, as expected Malindi will become the country's second port 6/. The town is an important fish-landing centre. Lamu, with a population below 10,000, is the third important urban centre and apart from its importance as a tourist centre of growing significance, the town plays an important role as a fishing centre and port for the hinterland especially notable for its use of traditional sea-going vessels.

Rivers

There are two major rivers which drain the coastal area, viz. the Tana and the Athi Rivers. The Tana River rises from the highland areas in the central part of the country and its major tributaries rise from the Aberdare Range, Mount Kenya and the Nyambeni Hills. The river, which is joined by other tributaries in the course of its journey to the sea, enters the Indian Ocean at Kipini and Karawa on the Formosa Bay. The river drains some of the most fertile land in the country where, as a result, there are intensive and extensive agricultural activities.

The Athi River has its sources in the central part of the country and more specifically on the Aberdare Range as well as the Kaputei Plains which lie in the south-western part of the country. The fertile land drained by the Athi is not as expansive as that drained by the Tana.

North of the Tana River, the Doderi River enters the ocean at the Siyu Channel while the Goshi River which rises on the Taita Hills enters the sea at the Kilifi Creek. South of the Goshi River are the Cha Shimba and Ramisi Rivers which rise on the Chenza Ridges.

Sources of land-based pollution

Among the most important sources of land-based pollution is the sediment transported into the Indian Ocean by the various rivers discussed above. While about 55,000 tonnes of sediment was delivered into the Indian Ocean annually by the Athi River alone, it is now estimated that that sediment load has increased to well over two million tonnes 7/. The Tana River contributes an equally heavy load of sediment to the ocean. Poor agricultural methods, overgrazing, the indiscriminate destruction of vegetation to provide for human settlements or for charcoal-burning are the major causes of the rapid loss of top soil and its eventual transport to the sea. Most of the activities which give rise to this loss of soil occur in the agricultural areas upstream of the major rivers, i.e., the Tana and Athi, the latter being known as Sabaka in its lower reaches.

5/ Statistical Abstract 1980, Central Bureau of Statistics, p. 135.

6/ Kenya Development Plan 1979-83, p. 427.

7/ Ongweny, G. S., Water development and the environment in Kenya, Consultancy Paper for the GOK/UNEP/UNDP Project on Environment and Development.

The deposit of sediment has led to increasing destruction of the coral reefs around Malindi and the northern coast, thus making difficult the task of developing the Malindi Marine National Park as well as the Watamu Marine National Park. The fact that the reduction of siltation following the damming of rivers has led to the improvement of marine fisheries would seem to suggest that the effect of sediment deposit in the sea cannot be altogether beneficial to marine fisheries development 8/.

Industrial development along the coastal area is another source of land-based pollution. A major industry in the coastal area is that centred on the production of cement, and apart from its significance as a source of air pollution through the release of dust, the cement industry could have important consequences on the environment arising out of the exploitation of limestone by quarrying. While no pollution of the sea from them has been recorded, the chemical and textile plants which are found along the coastal area, and, principally at Mombasa, have the potential to cause serious pollution by the release of toxic effluents and dyes which the textile and chemical industrial processes generate.

The mining industry is another (existing or potential) source of marine pollution. Small-scale production of baryta is in operation at Vitengeni, north of Kilifi, while at Kinangeni about 14 miles north of Mombasa, lead-silver ores have been exploited in recent years. The production and refining processes use sea-water which would normally be released back into the sea despite the fact that such water is said to contain a high concentration of ore-metals 9/.

Agricultural-based industries have been responsible for the pollution of the marine environment for a long time now and the sugar-processing plant is a good example of this. This plant has seriously compromised fisheries development in the lower reaches of the Ramisi River by its discharge of wastes into the river.

The growth of human settlements has been phenomenal in the coastal area and cities and towns such as Mombasa and Malindi have expanded with the increase in industrial and commercial activities as well as the growth of tourism. Because of the inadequacy of sewage treatment and disposal facilities in most urban centres in the area the sea has proved an easily available depositary. In 1971, Mombasa was said to discharge about 1,200,000 gallons of sewage waste water into the Indian Ocean and, while the situation has improved considerably, the disposal of sewage into the sea remains a serious problem 10/.

8/ UNEP, Marine and coastal area development in the East African Region, UNEP Regional Seas Reports and Studies No. 6, p. 13.

9/ Report of the GOK/UNEP/UNDP Project on environment and development, January, 1981, Vol. 2, p. 504.

10/ National Report on the human environment in Kenya. Prepared by the Working Committee of the United Nations Conference on the Human Environment, Nairobi, June 1971, p. 69.

Coastal traffic

The importance of coastal traffic is shown by its continued growth both in the case of what occurs within Kenya's territorial waters without actual contact with the mainland, as well as in the case of traffic handled at the country's ports and mainly at Mombasa. Kenya's coastal area lies within the main shipping routes traversed by oil tankers and other commercial sea-going vessels. Petroleum in its crude form is shipped via these routes from the Gulf area to Western Europe and manufactured goods from Europe through the Atlantic and the Indian Ocean to various destinations around the world. But the petroleum-based traffic is also important for Kenya which receives its imports of crude through Mombasa.

An indication of the importance of coastal traffic can be obtained from the figures of cargo handled at Mombasa where, in the case of dry cargo, there was a growth of about 4.4 per cent in 1981. Table 1 below gives an indication of the cargo handled between 1977 and 1981:

Table 1

Freight handled at Mombasa harbour
1977 - 1981

	1 000 tonnes				
	1977	1978	1979	1980	1981
LANDED:					
Dry cargo	1 336	1 480	1 037	2 003	2 060
Bulk liquids	2 618	2 787	2 822	3 467	-
TOTAL	3 954	4 267	3 859	5 470	-
LOADED:					
Dry cargo	1 460	1 486	1 560	1 438	1 531
Bulk liquids	461	314	474	598	
TOTAL	1 921	1 800	2 034	2 036	
TOTAL FREIGHT HANDLED	5 875	6 067	5 893	7 506	

Source: Economic Survey, Central Bureau of Statistics 1982, p. 196

Total revenue earned by the harbour authorities shown under water transport in table 2 below also rose in 1981 by about 4 per cent.

Table 2

Transport - Value of output K&l 000

	1977	1978	1979	1980	1981
Railway transport	27,480	28,585	29,045	32,871	38,840
Road transport	53,004	69,270	77,653	92,311	98,985
Water transport	43,103	53,868	55,449	62,712	65,306
Air tranport	23,494	34,785	40,009	41,645	39,862
Services incidental to transport	36,615	41,091	40,822	31,236	37,494
TOTAL TRANSPORT	183,697	227,599	24,298	260,775	280,487

Offshore exploration and exploitation

Oil exploration programmes in Kenya go back to 1954 and over the years no viable oil deposits have been discovered. Nearly three-quarters of the country has been geologically mapped with 30 per cent of the country being considered to have hydrocarbon properties, especially the sedimentary basins in the eastern, north-eastern and coastal areas. Fourteen wells have been drilled over the last 25 years and of these five have been offshore as shown in table 3.

Table 3

Drilling in Kenya

Name of drilling area	Depth (m)	Name of company
Anza	3 662	Chevron/Esso
Bahati	3 420	Chevron/Esso
Meri	1 935	Chevron/Esso
Wal-Meril	3 658	Chevron
Garissa	1 240	BP/Shell
Wahu 1	1 768	BP/Shell
Wahu 2	3 728	BP/Shell
Hagassol	3 091	Texas Pacific
Mararini	1 991	Texas Pacific
Dodart	4 310	BP/Shell
Pate*	4 187	BP/Shell
Pandagana*	1 981	Texas Pacific
Kipini*	3 662	BP/Shell
Ras Kaluj*	1 537	Wainoco
Simba 1*	3 604	Total

*Offshore-share areas

Source: Report of the GOK/UNEP/UNDP Project on environment and development, January, 1981, Vol. 2, p. 382

Offshore oil exploration is also being conducted at Ungwana Bay.

INTERNATIONAL ASPECTS

Kenya's signing and ratification or otherwise of international conventions, etc. are indicated hereunder:

(1) International Convention for the Prevention of Pollution of the sea by Oil, London, 1954, as amended in 1962 and 1969,

- Date of ratification 12 December, 1975;

(2) 1971 Amendments to the 1954 International Convention for the Prevention of Pollution of the Sea by Oil,

- Kenya has not ratified the 1971 amendments of the 1954 convention;

(3) International Convention for the Prevention of Pollution from Ships, London, 1973, (MARPOL),

- Date of ratification 12 September, 1975;

(4) Protocol relating to International Convention for the Prevention of Pollution from Ships, London, 1978,

- Kenya has not ratified or signed the protocol;

(5) International Regulations for Preventing Collisions at Sea, London, 1960,

- Kenya has not ratified these Regulations;

(6) 1972 Amendments to the 1960 International Regulations for Preventing Collisions at Sea,

- Kenya has not ratified these amendments;

(7) International Convention for the Safety of Life at Sea, London, 1974,

- Kenya has not ratified this convention;

(8) International Protocol Relating to the International Convention for the Safety of Life at Sea, London, 1978,

- Kenya has not ratified this protocol;

(9) International Convention Relating to the Intervention on the High Seas in Cases of Oil Pollution Casualties, Brussels, 1969,

- Kenya has not ratified this convention;

(10) Protocol Relating to Intervention on the High Seas in Cases of Marine Pollution by Substances other than Oil, London, 1973,

- Kenya has not ratified this protocol;

(11) International Convention on Civil Liability for Oil Pollution Damage, Brussels, 1969,

- Kenya has not ratified this convention;

(12) International Convention on the Establishment of an International Fund for Compensation of Oil Pollution Damage, Brussels, 1971,

- Kenya has not ratified this convention;

(13) International Convention on the Liability of Operations of Nuclear Ships, Brussels, 1962,

- Kenya has not ratified this convention;

(14) Convention Relating to the Civil Liability in the Field of Maritime Carriage of Nuclear Materials, Brussels, 1971,

- Kenya has not ratified this convention;

(15) International Convention Relating to the Limitiation of the Liability of Owners of Sea-going Ships, Brussels, 1957

- Kenya has not ratified this convention;

(16) Protocol Amending the International Convention Relating to the Limitation of the Liability of Owners of Sea-going Ships, Brussels, 1979,

- Kenya has not ratified this protocol;

(17) Convention on Limitation of Liability for Maritime Claims, London, 1976,

- Kenya has not ratified this convention;

(18) Convention on the High Seas, Geneva, 1958,

- Kenya ratified this convention on 20 July, 1969;

(19) Convention on the Continental Shelf, Geneva, 1958,

- Kenya ratified this convention on 20 September, 1969;

(20) Convention on the Prevention of Marine Pollution by Dumping of Wastes and other Matters, London, 1972,

- Kenya ratified this convention on 17 January, 1976;

(21) Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water, Moscow, 1963,

- Kenya ratified this treaty on 11 June, 1965;

(22) Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil thereof, Washington/London/Moscow, 1971,

- Kenya has not ratified this treaty;

(23) Convention on the Prohibition of Military or any Other Hostile Use of Environmental Modification Techniques, Geneva, 1977,

- Kenya has not ratified this convention;

(24) African Convention on the Conservation of Nature and Natural Resources, Algiers, 1968,

- Kenya ratified this convention on 16 June, 1969;

(25) Convention on the Conservation of Migratory Species of Wild Animals, Bonn, 1979,

- Kenya has not ratified this convention;

(26) Convention on International Trade in Endangered Species of Wild Fauna and Flora, Washington, 1973,

- Kenya ratified this convention on 13 March, 1979;

(27) United Nations Convention on the Law of the Sea, Kingston, 1982,

- Kenya ratified this convention on 10 December, 1982;

(28) Charter of the Organization of African Unity, Addis Ababa, 1963,

- Kenya ratified this charter after signing it on 25 May, 1963.

The International Convention for the Prevention of Pollution of the Seas by Oil, London, 1954, as amended in 1962 and 1969, though not fully re-enacted on the national basis, has been extensively reflected in the provisions of the country's Merchant Shipping Act. 11/ The Continental Shelf Act 12/ defines rights in respect of the Continental Shelf and the natural resources, the application of criminal law for acts or omissions which occur within the area of the continental shelf, as well as the application of civil law.

While Kenya did not become a party to the Convention on International Trade in Endangered Species of Wild Fauna and Flora until 1979 and no major or significant legislation has been enacted in this area since then, it is clear that the 1973 convention had considerable influence on the nature of provisions which make up the Wildlife (Conservation and Management) Act 13/ on such matters as the export of

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11/ Act No. 35 of 1967

12/ Chapter 312, Laws of Kenya

13/ Chapter 376, Laws of Kenya

trophies, importation of trophies generally and that of ivory and rhinoceros horn. The core provisions of the 1973 convention relate to the type of species which appear in Appendices I and II, licensing of export of trophies and their derivatives and the role of customs authorities at the point of entry and exit for such trophies and derivaties. The Wildlife (Conservation and Management) Act contains clear provisions on all these aspects beginning with the setting up of the two Appendices I and II, with the first one incorporating those wildlife species which face the danger of extinction and therefore require maximum protection. The export of trophies and/or derivatives must be accompanied by licences (or permits) issued by the relevant authority while a person bringing such an item into the country must produce a licence/permit issued by the the relevant authority in the country of origin of the trophy or derivative. The attempt to reflect the provisions of the 1973 convention stems from the fact that its success depends on the harmony in legislation of the Member States on this subject and, having suffered great loss to its wildlife heritage through the illegal trade in trophies, Kenya has had every reason to ensure harmony between its legislation and the provisions of the convention. The concept of "endangered species" finds recognition in the Third Schedule of the Act which establishes a list of animals, the hunting of which is generally banned except in those cases where specific authority is given.

Among the Working Agreements which Kenya has signed on a bilateral basis the most comprehensive is the one entered into in 1981 between the Ministry of Environment and Natural Resources on behalf of the Government of the Republic of Kenya on the one hand and the Environmental Protection Agency (EPA) on behalf of the United States Government on the other hand. While the agreement is quite broad in scope, two aspects of interest here are its provisions on environmental impact assessment and disposal of hazardous and toxic wastes, which provisions relate to the environment generally including the coastal area ecosystems. The agreement provides for co-ordination between the two countries in the following fields: environmental impact assessment, disposal of hazardous and toxic wastes, environmental management, wastes disposal and pollution control.

At the time of its signature it was hoped that the agreement would provide a basis upon which the EPA would provide resources to Kenya, including training opportunities, to enable the latter to deal effectively with issues covered by the above subject areas. Kenya could utilize the agreement to improve the capabilities of its water quality agencies by calling for the exchange of data on water pollution control technology, water quality standards and enforcement procedures. All these are critical elements of any effective water pollution control programme. In addition, Kenya could seek training opportunities in US institutions so as to increase the number of personnel working in the water pollution control agencies.

The position of Kenya regarding Part XII of the convention is one of positive support particularly regarding global and regional co-operation in matters relating to the protection and preservation of the marine environment. Kenya maintains the same position with regard to technical assistance and monitoring and environmental assessment, and has no difficulty with the rest of the provisions in this part of the convention. Among the programmes of a regional or global importance in which Kenya has participated and which have not been discussed are those which have been undertaken within the framework of the FAO's Indian Ocean Fisheries Commission and the Co-operative Investigation of the North and Central Western Indian Ocean (CINCWO). The country's participation is implemented through the activities of the Kenya Marine Fisheries Research Institute and the activities of the two programmes are directed to determining various characteristics of fisheries and other living resources, including rational management and utilization.

The country participates in the International Whaling Commission although it does not appear to have any significant whaling populations itself. Indeed, it would appear that the findings of the relevant research institutions indicate that the country has no whale population. At this stage, what can be stated with certainty is that the availability of greater resources to these institutions will enable this type of question to be dealt with more satisfactorily. In view of this, one of the explanations of the country's participation is her general concern about the rational management of marine living resources as well as the conviction that management principles developed as a result of the work of the Commission are likely to have great influence in fora which address themselves to the management of those living resources with which the country is endowed.

No significant information is available to determine the nature of the participation of the country in the activities of the Indo-Pacific Fisheries Council established under the 1948 Treaty (amended 1961) (UNTS 120 p. 59 and UNTS 418 p. 348).

NATIONAL ASPECTS

Marine pollution by discharge of oil from ships

Kenya law relating to the prohibition of pollution by discharge of oil from ships in the area is first defined by the Territorial Waters Act 14/ and, secondly, under the terms of the Presidential Proclamation on the Exclusive Economic Zone. 15/ The Territorial Waters Act defines the country's territorial waters as those waters within 12 miles of the mainland. Within this area power could be exercised to deal with pollution generally. While waters beyond the territorial waters and within the 200-mile Exclusive Economic Zone cannot be treated on the same basis since Kenya does not exercise sovereignty over them, the United Nations Convention on the Law of the Sea recognizes the coastal State's exercise of jurisdiction with a view to the proper management of the resources within this area. 16/

The country's merchant shipping act extends the area within which oil pollution-prohibition law applies and imposes within such area, qualified absolute and strict liability for pollution damage within 100 miles from the coast of Kenya. The Act provides:

"s.309(1) if any oil or oily mixture is discharged from:

- any ship into a harbour or into the sea within 100 miles from the coast of Kenya; and/or

- any Kenya ship into the sea within 100 miles of any land;

the owner or master shall be guilty of an offence and liable to a fine not exceeding ten thousand shillings."

14/ Chapter 371, Laws of Kenya

15/ 1978

16/ Article 55, United Nations Convention on the Law of the Sea, 1982.

The above provision is intended to deal with the oil pollution which originates from well beyond the territorial waters. The absolute and strict liability is qualified by Section 273(2) of the Act in those cases where damage has occurred for reasons other than the actual fault of the owner or master and without him being privy to the act or omission.

The definition of "oil" and other substances embraced by the Act are sufficiently wide to cover most of the incidents which would normally be experienced. In this regard, Section 308 provides:

> " 'discharge' in relation to oil or oily mixtures means any discharge, escape or leak howsoever caused;
>
> 'oil' means crude fuel oil, heavy diesel oil, coal tar and bitumen and 'oily' shall be construed accordingly;
>
> 'oily mixture' means a mixture containing not less than 100 parts of oil in 1,000,000 parts of the mixture."

The breadth of the above definition has the effect of widening the scope of liability for those who pollute the marine environment. The other factor which enhances this liability is the fact that Section 309(3) makes a person convicted of an offence under the same liable to make good any expense incurred by another person in removing the pollution or in remedying any damage attributable to the offence.

In addition to provisions on pollution by oil or oily mixtures, Section 310 makes the emission of dark smoke, soot or ash or grit by a ship, for a length of time, in excess of five minutes, an offence. Generally speaking, a ship would be covered by prohibition provisions in all cases on account of its state or condition or because of the release or escape of substances which are injurious or dangerous to health. This provision of the Public Health Act 17/ is intended to cover nuisances and may need too liberal an interpretation to embrace cases of pollution. In the case of the Petroleum Act 18/ the ships covered by the prohibition provisions are those which carry petroleum products as a cargo or ships' stores. In the same category with these ships are tanks and holds which have not been rendered free from inflammable vapour. 19/ The installations which are covered by the Petroleum Act include holds, tanks, pipes and connections, quays. etc.

The pollutants which are covered by national legislation include petroleum, water mixed with petroleum, water from bilges or tanks, water used for flushing out pipes and connections, or sand used to absorb petroleum. 20/ A wider variety of pollutants are, of course, covered under the other legislation such as the Water Act 21/, the Fish Industry Act 22/, etc., except that these are general in character and are not specifically geared to respond to the issues which oil pollution of the marine environment raises.

17/ Section 118(1)(a), Public Health Act. Section 244, Laws of Kenya

18/ Chapter 116, Laws of Kenya

19/ Rule 31, The Petroleum Rules, L.N.201/1957

20/ Chapter 372, Laws of Kenya

21/ Chapter 372, Laws of Kenya

On a general level the Petroleum Act empowers the minister to require the installation of special equipment in ships under Section 4(d) which provides that he shall determine the conditions on and subject to which petroleum may be unloaded, landed, loaded or trans-shipped. It is the Petroleum Rules, however, which make specific provisions on the special equipment which should be installed in the case of ships engaged in the conveyance of petroleum. Rule 36(1) requires that when a ship is moving in the harbour, it must have one or more tugs in attendance should this be considered desirable by the Port Manager. It is also required that during the loading or discharging of petroleum all ventilator outlets of holds containing petroleum shall be covered with wire gauze or provided with some other flame-proof protection. When discharging or loading or while hatches are open, a petroleum ship is required, under Rule 49, to have her fire hoses connected and all fire extinguishing appliances ready for immediate use. And in the case of loading dangerous petroleum in bulk, the escaping vapours are required, under Rule 57, to be passed through the gas line which is to be carried to a point on the mast ten feet from the masthead light.

Under Rule 60 petroleum ships are required to have wire hawsers of suitable sizes, one fore and one aft, hanging to the water's edge with a shackle fitted to attach the tow rope of a tug if necessary in case of fire before commencing to load or discharge Class A petroleum which Rule 3(2) defines as having a flash point below 73QQF. It is required, under Rule 66(b), that petroleum loaded on to a petroleum lighter be protected by tarpaulins from sparks.

The transfer of oil within harbours or ports is undertaken by means of lighters. These lighters are, with a few exceptions, subject to the same rules as petroleum ships, the basis of this being Rule 64 which provides:

> "For the purpose of this part of these Rules a petroleum lighter shall be deemed for all purposes to be a petroleum ship present in the harbour and the owner or, in the case of a hiring, the hirer shall conform with, and be responsible for, the observance of and shall accept the same liabilities under the rules relating to petroleum ships to the same extent as if the petroleum lighter were a petroleum ship present in the harbour of which he were a master and in relation to which he were a petroleum owner."

Accordingly, the transfer must be undertaken using a vessel fitted with special equipment such as that discussed above in relation to ships. The exceptions which have been referred to include the requirement to have a competent person aboard a ship when loading or discharging petroleum, the presence of an officer on board while the lighter is within a harbour, the need to have fire hoses and fire extinguishing facilities, and the requirement that ships should have wire hawsers.

The Kenya Ports Authority, established under the Kenya Ports Authority Act 23/, is responsible for the operations of the country's ports. Now the Act does not speak of the installation of port facilities for oil as a specific duty of the Authority but since Mombasa is an important point of entry for oil imported for the Kenyan market as well as for others further afield, it is clear that such oil facilities are an important aspect of the Authority's operations. The provision of port facilities is, in fact, made an obligation upon the Board of Directors of the Authority under Section 8(1) which states:

23/ Chapter 391, Laws of Kenya

"it shall be the duty of the Board to provide by means of the undertaking of the Authority a co-ordinated system of ports and facilities relating thereto."

More to the point in as far as the provision of port facilities for oil is Section 8(2) which provides:

"8(2) The performance of the duty referred to in sub-section (1) shall include a general duty to secure that the Authority provides all reasonable facilities for handling and warehousing of cargo and other goods."

Oil records are made at various stages of its arrival at the port, the first one being when the ship carrying it arrives in the harbour. Rule 34(1) of the Petroleum Rules requires the master of the ship to submit a written declaration containing the following particulars:

(a) The quantity of petroleum on board and the manner it is stowed or carried;

(b) Whether any of it is class A petroleum and if so how much;

(c) Whether any of it is class B petroleum and if so how much;

(d) The quantity of petroleum (including its class) intended to be landed at the harbour.

A written notice must also be made by the owner of the petroleum which is to be loaded or discharged and once such written notice has been submitted, the authority of the Port Manager must be obtained before work commences.

General requirements relating to records, which could also apply to ships carrying oil, are to be found in Section 38 of the Kenya Ports Authority Act which provides that the master of a ship should produce among other things: (i) the ship's register and the ship's papers; and (ii) any other information relating to the ship and its cargo.

Under the Petroleum Rules, powers of inspection are exercisable by the Port Manager with a view to:

(a) Ascertaining the accuracy of any written declaration or document which a ship's master or owner submits in accordance with the provisions of the Act;

(b) Ascertaining whether the provisions of the Rules are being observed.

The penalties for a contravention of the Rules relating to ships carrying petroleum within a port, especially those rules concerning precautionary measures, include a fine of one thousand shillings (KShs. 1,000) for every day upon which the offence occurs or continues. 24/ However, where the offence relates to loading, landing or trans-shipment of petroleum it shall be a good defence for the owner or master, if proceedings have been brought against him, if he can adduce evidence to establish that he took all reasonable measures to prevent the commission of the offence and that the offence was not caused by his own acts or neglect or those of persons employed by him.

24/ Section 8, Petroleum Act

Where the offence relates to a failure to give notice, in the case of a ship carrying a cargo of petroleum, as required by the Rules, a fine of two thousand shillings (KShs. 2,000) is provided for under Section 9. And in those cases where the offence relates to the contravention of any rule under the Act for which no specific penalty is provided for, a fine not exceeding five hundred shillings (KShs. 500) is to be imposed under Section 10.

Marine pollution by the exploration of marine resources

Fisheries are among the most important living resources whose exploitation has the potential to lead to marine pollution. There have been numerous cases where it has been reported that fishermen have used explosives to stun fish thereby making them much easier to catch, and poisonous substances have also been used. The regulation of these harmful fishing methods is facilitated by the requirement under Section 9(1) of the Fish Industry Act that no person shall catch or assist in catching fish in territorial waters otherwise than under and in accordance with the terms of a licence issued by the relevant authority. The use of explosives and poisons for fishing is not covered by any general and specific prohibition and the specific provisions or aspects are only to be found in Rules relating to the fisheries of the Ahti and Tana Rivers before they empty into the Indian Ocean. Rule 2 of the Fish Protection (Athi River and Thika River) Rules 25/ provides:

> "2. No person shall kill or take fish in -
>
> (a) the Athi River at any point between its source and its junction with the Tsavo River; or
>
> (b) the Thika River at any point between its source and its junction with the Tana River:
>
> by netting, trapping, poison or explosives."

The provisions of the Water (General) Rules which have been enacted under the Water Act 26/, however, are wide enough in scope to apply to the cases under reference. Rules 77 and 78 prohibit the deposit of any substance which is harmful to fish. Still, the situation may not be very helpful because the emphasis in the Rules is on water quality rather than fishery management.

In as far as the exploration and exploitation of mineral resources are concerned, oil resources may be the ones to consider because it is on them that work has already started. The Oil Production Act 27/, in terms of Section 3(1) applied:

> "...to all land situated within Kenya, including that part of the sea-bed off the coasts of Kenya, and the subsoil thereunder...."

25/ Cap 217(1948) sub. Leg.

26/ Chapter 372, Laws of Kenya

27/ Chapter 308, Laws of Kenya

Oil exploration is undertaken in accordance with the terms of a licence given for the purpose and these terms include an undertaking by the licensee to prevent the escape of petroleum into any reservoir, estuary or harbour. The licensee is also obligated to drain waste oil, salt water and refuse in a manner approved by the Commissioner of Mines and Geology. In the case of oil production activities, the terms of the licence under which such activities are undertaken require the licensee:

(a) To control the flow and to prevent the escape or wastes of petroleum discovered in, or obtained from, the area in question;

(b) To conserve the land for productive operations;

(c) To prevent the escape of petroleum into any estuary or harbour.

The licensee is also required to use methods and practices customarily used in good oilfield practice in confining oil which has been produced in order to avoid any harm or pollution its escape might cause. And whenever he intends to abandon a well, the licensee must ensure that it is securely plugged so as to prevent the ingress and egress of oil in and from the strata or portion of the strata which has been bored through. The licensee is also liable for any damage or injury to the property and rights of any third party and in such cases he is required to pay compensation for such damage.

Onshore uses of sea-water

The use of sea-water for cooling purposes occurs in a number of industries but the major ones are electric power plants. The discharge of coolant water from these plants into the sea causes thermal pollution whereby the temperature of the sea-water is raised. If the rise in temperature is high enough it would have adverse effects on the marine environment.

At the moment there are three thermal generating stations stiuated in the coastal area and all of them have great potential to affect the environment adversely. The first station is situated at the Mbaraki Creek in Mombasa, the second generating station is situated at Malindi and the third at Kipevu in Mombasa.

The establishment and operation of electric power generating stations can be regulated, so as to avoid environmental hazards, under both the Water Act and the Electric Power Act. 28/ Among those uses of water which require a permit is, under Section 35(e):

"...a power purpose, which expression means the provision or employment of water for the development of power...."

Where it is proposed to develop power on land which belongs to the developer, the application for a permit shall be accompanied by a sketch-map showing the following 29/:

28/ Chapter 314, Laws of Kenya

29/ Rule 25(2), (3), Water (General) Rules

(a) The course of the body of water;

(b) The proposed point of diversion;

(c) The proposed point of utilization of the water; and

(d) The proposed point of return of the used water.

At the time of approving the application, the Water Apportionment Board has the opportunity to safeguard the environment since at that point it has power to lay down terms and conditions which the power developer must observe.

The generation of power under the Electric Power Act requires that a licence be obtained from the Minister before any works are commenced. Such licensee is generally liable for any accidents, damage and injuries which may occur through his own acts or defaults on those of the persons in his employment. However, a licensee or operator of a power generating plant may be exonerated from liability for nuisance by an order issued by the Minister 30/ and in the case of the power plants in the coastal area, the licensee has been exonerated from liability for nuisance in respect of the power generating stations at Malindi 31/; at Kipevu, Mombasa 32/; and Mbaraki Creek, Mombasa 33/.

The fact that the licensee may be exonerated from liability for nuisance by an order of the Minister does not deprive any person of his right to bring an action in court for the recovery of damages for a nuisance created by the licensee, so long as the claimant can establish that:

(a) The nuisance could have been abated or substantially reduced by the employment of reasonably practicable means having regard to the public interest, the state of scientific knowledge and to situation and expense; or

(b) The nuisance is caused or contributed to by negligence in the installation, operation or maintenance of the works in question.

The environmental problem which is of special concern here is that of thermal pollution and the effect that may have on the marine environment, and while the Electric Power Act speaks of nuisance without defining the term, it is safe to assume that the court would be guided by the wide definition of the term given in the Public Health Act and the many precedents under common law to accommodate the urgent need to protect the marine environment.

30/ Section 69(2), Electric Power Act

31/ L.N. 484/1960

32/ L.N. 506/1960

33/ L.N. 495/1960

Apart from the specific provisions which have been dealt with above, a more general regulatory provision is to be found in Section 144(1):

> "Although any shore, bed of the sea, river channel, creek, bay or estuary is included in the area of supply, nothing in the licence shall authorize the licensee to take, use or in any manner interfere with any portion of that shore or bed of the sea, or of the river, channel, creek, bay or estuary or any right in respect thereof, or of the water thereof, without the previous consent in writing of the Minister."

Additionally, the Minister may, under Section 145(1)(c), make rules setting out the means to be adopted for preventing or abating any nuisance likely to arise from the operation of the works concerned.

Marine pollution from land-based sources

Mining activities in the coastal area, as noted in the introduction to this report, are not substantial. There have, however, been cases in the recent past where marine pollution has occurred as a result of mining operations, an example being the pollution arising out of the now-closed lead-zinc mine at Kinangoni.

A mining operation can only be undertaken in accordance with the terms and conditions of a licence issued for that purpose by the Commissioner. The mining rights exercised in relation to a location duly registered by the Commissioner may be forfeited where the holder of the location fails to comply with the provisions of the Mining Act 34/.

The holder of a location may apply for a lease which, if granted, gives him the right to enter the land covered by the lease and mine and remove the minerals concerned. The mining operations must be carried out in accordance with the provisions of the Mining (Safety) Regulations 35/ which, from the point of view of preventing marine pollution require that:

(a) Mercury, cyanide and any other poisonous substances used, be stored in a compartment specially set aside for that purpose;

(b) No water containing any poisonous or injurious substance be permitted to escape into any body of water before it has been rendered innocuous.

The Commissioner of Mines and Geology or an Inspector of Mines is empowered to enter any mine or visit any operational area to ensure that the provisions of the Act are being complied with. And upon a mine being abandoned, it is required that it be securely fenced, that excavations be filled in and any boreholes be plugged. The Minister is also empowered to make regulations regarding the disposal of poisonous or noxious products resulting from mining operations, and the defiling or wasting of water wherever situated and wherever obtained.

34/ Chapter 306, Laws of Kenya

35/ L.N. 275/1969

Petroleum activities

In the discussion of marine pollution airising from the exploration and exploitation of mineral resources of the sea, the law was examined from the point of view of the manner in which it responds to the problems which arise. Suffice it to say that the same law applies where petroleum activities, whether exploratory or exploitative, are undertaken on land. Thus, the person undertaking such activities will be required to ensure that he employs good oilfield working methods, does not allow the escape of oil into the sea, etc.

Industrial and commercial establishments

Industrial and commercial establishments may create marine pollution of an aesthetic kind or by disturbing the equilibrium of the marine ecosystem. The relevant law in that case would be the Land Planning Act 36/ and the regulations made thereunder. Under this Act, a person proposing to undertake a change in the use of land is required to apply for the consent of the planning authority. While environmental considerations are not specifically included among those factors which the planning authority should take into account in considering an application for consent, it is likely that such considerations will in practice be given due weight. In any case, the New Projects Committee of the Ministry of Industry and the National Environment Secretariat of the Ministry of Environment and Natural Resources, two institutions which normally assess all investment applications, take a much broader view of the impact of such industrial and commercial establishments than the law would suggest. The establishments may also lead to marine pollution from the discharge of effluents of various kinds. The law relating to this aspect is discussed below.

Ports

Port development has the potential to lead to marine pollution of various kinds. Debris and materials brought to the site may find their way into the marine environment. Again, the operations of a port may themselves create marine pollution with oil being spilled during loading, discharge or transfer. The operation and management of ports is vested in the Kenya Ports Authority whose jurisdiction includes the power to 37/:

(a) Construct any wharf, pier, landing or any other work deemed necessary;

(b) Control the erection and use of wharves in any port or approaches to such port;

(c) Construct new ports.

While the Kenya Ports Authority Act and the Petroleum Act are silent as to their responsibility to prevent the incidence of marine pollution, other bodies created under the various laws could always bring court action, if necessary, to ensure compliance with the provisions of the laws pertaining to the subject.

36/ Chapter 303, Laws of Kenya

37/ Section 12(2)(a), (a), Kenya Ports Authority Act

Water quality and waste disposal

Activities to ensure the maintenance of water quality are undertaken by the Water Quality and Pollution Control Section of the Ministry of Water Development, such activities being undertaken in accordance with the provisions of the Water Act. Because of the impact which the disposal of wastes has on water quality, the Water Apportionment Board has established effluent standards in relation to most industries. Such standards are incorporated as terms of the permit to use water for an industrial activity so that failure to comply with such standards may result in the forfeiture of the permit. Where the wastes are to be disposed of other than by discharge into a body of water, the Ministry of Health would normally be the agency to ensure that no untoward consequence is thereby triggered off.

Section 118 of the Public Health Act defines what constitutes "nuisances" which are dealt with in various ways. The nuisances include any act or omission which may render water unfit for consumption in a manner posing a danger to life or health. This encompasses situations whereby substances, whether effluents or wastes, may be discharged into a body of water. The Ministry of Health, apart from proceeding on the basis of the authority of this provision, can also act under Section 129 of the Act which imposes a statutory obligation on local authorities to protect water supplies, in their areas of jurisdiction, against pollution. The Ministry could thus act on its own under Section 118 or by requiring a local authority to take remedial measures.

Coastal air pollution

The most important source of air pollution in the coastal area is the oil refinery which is said to discharge about two tonnes of sulphur dioxide daily into the atmosphere 38/ and which is blown out to the sea by winds. The cement industry, also based in Mombasa, releases dust and other particulate matter into the atmosphere. Gasoline-burning vehicles contribute additional pollution of the air. No study had been made to estabish the extent of the air pollution resulting from all these activities, but if the results of the study of air pollution conducted in Nairobi 39/ in 1978 are anything to go by, what is happening in Mombasa should provide sufficient cause for remedial measures.

The provisions of the Factories Act (Chapter 514, Laws of Kenya) relating to remedial measures in industrial activities discharging dust or fumes or gaseous substances have been promulgated with a view to protecting the life and health of the workers, and the wider environmental considerations are inadequately catered for, if at all. One has therefore to use the provisions of the Public Health Act, which in the case of "nuisance" adopts a definition wide enough to cover cases of air pollution arising from industrial activities. The Act defines as a nuisance:

(a) Any factory which is not so ventilated as to destroy or render harmless and inoffensive any gases, vapours, dust or other impurities it generates 40/;

38/ Marquand, C. J., Energy and the environment in Kenya, GOK/UNEP/UNDP Project on environment and development, May, 1979, p. 33

39/ FAO/UNEP Project for the control of contaminants in food assignment, report by Dr. M. Ramasamy, 1978

40/ Section 118(1)(n), Public Health Act

(b) Any chimney discharging smoke in such quantity or in such a manner as to be offensive or injurious or dangerous to health. 41/

Vehicular air pollution is covered by the provisions of the Traffic Act 42/ which prohibits the emission of (visible) smoke by a motor vehicle.

Nature protection areas, coastal and marine parks

Nature protection areas may be established where the Minister:

"...is satisfied that it is necessary, for ensuring the security of the animal or vegetable life...or for preserving the habitat and ecology of such area...." 43/

In the notice establishing the nature protection area, the Minister may specify the acts which are prohibited or restricted or regulated.

Marine parks established in the coastal area, namely the Malindi National Park, the Watamu National Marine Park, Mpunguti Marine National Reserve, have been established under the powers of the Minister to establish national parks generally 44/. Mining activities within national parks, whether shore or marine, are closely regulated so as to minimize any harmful impact they might have on the national parks' ecosystems. Accordingly, the lawfully acquired before an area became a national park. Commercial filming is also regulated in the same manner as is flying, landing and taking off from a national park.

Coastal tourism development

The development of coastal tourism has been accompanied by the expansion of existing, or the setting up of new, hotel establishments along with the infrastructure which goes with it. The physical development aspects would normally be covered by laws which have been discussed above from the point of view of land use, discharge of wastes and sewage, etc. Of course, there is no legislation, as yet, which seeks to respond to the aesthetic and social aspects of tourism development and the impact these might have on the coastal and marine environment.

Soil erosion

The problems of soil erosion are dealt with mainly under the Agriculture Act (Chapter 318) which empowers the Minister to take a number of measures including:

(a) The planting of trees;

(b) The regulation of livestock grazing;

(c) The regulation of cultivation and the determination of farming practices including the employment of terraces, construction of gabions, etc.

41/ Section 118(1)(q), Public Health Act

42/ Chapter 403, Laws of Kenya

43/ Section 15(1), Wildlife (Conservation and Management) Act, Chapter 376, Laws of Kenya

The Minister is also empowered to issue Land Development Orders which direct the owner of a piece of land to undertake specific development activities designed to avoid giving rise to soil erosion, as well as remedying that erosion which is already taking place.

The protection of water catchment areas could be undertaken under the above Act but specific provision does exist in Section 14 of the Water Act for the protection of the same. The Minister for the time being responsible for water development is empowered by this provision to require the cessation of any activity which he or she deems prejudicial to the water catchment area and he or she may also require that certain actions be effected to enhance and improve such catchment areas.

The legislation on land is unspecific about soil erosion control measures, an understandable situation if it is remembered that this legislation only relates to questions of rights and obligations in relation to land. The problems encountered in the enforcement of the legislation relating to soil erosion are explained by: (i) the shortage of manpower in the Ministry of Agriculture; and (ii) the fact that some of the activities such as cutting trees for charcoal burning are economic in nature and a purely legal approach which overlooks the underlying factors cannot really succeed.

In response to the growing problem of soil erosion, the Presidential Permanent Commission on Soil Conservation and Afforestation has been set up. The members of the Commisson are appointed by the President of the country. The Commission co-ordinates the activities of other government agencies responsible for soil erosion control. To date, the Commission has undertaken work designed to develop national awareness of the implications of soil loss to the country and in this regard has given encouragement and publicity to the annual soil conservation week.

Institutional and administrative framework for environmental management

At present, rsponsibility for environmental management lies with the National Environment Secretariat which is a Department of the Ministry of Environment and Natural Resources. The Secretariat lays down the country's general policy on environmental management in addition to responding to specific incidents as they arise. In the latter case, the Secretariat would advise on what should be done to remedy a case of pollution of a body of water, for example, and this role includes the power of the Secretariat to enforce its recommendations.

The Secretariat was established by the late President Jomo Kenyatta in 1974 under the executive authority which the Constitution confers upon the President (Act No. 5 of 1969). At its establishment, the Secretariat was a department within the Office of the President and it continued being under this Office until 1979 when it was moved to the Ministry of Environment and Natural Resources which was also established in the same year.

An equally, if not more important role is played by the National Environment Secretariat in assessing the potential impact of proposed activities. The other parties in the environmental impact assessment procedures are the New Projects Committee which, in fact, is the one which initially receives applications for consent for proposed activities. The Committee, however, is normally concerned with the financial aspects of an investment proposal and leaves the Water Quality and Pollution Control Section of the Ministry of Water Development to examine the proposal from the point of view of its impact on water resources in addition to the proposed methods of waste disposal. Effluent standards are then laid down depending on the wastes to be generated by the proposed activity

The National Environment Secretariat takes a much broader approach in assessing the impact of a given activity to ensure that regard is paid to the totality of the environment rather than individual resources or ecosystems.

The Secretariat's history has been marked by a rapid growth of its personnel from a handful in 1974 to more than 100 at present. The operations of the Secretariat are more clearly delineated internally with functions being divided into Impact Assessment, Natural Resources, Environmental Law and Environmental Education Divisions. The enforcement procedures adopted by the Secretariat have been of a kind which arecharacteristic of of response to other directives from other governmentdepartments. The situation would have been different if there was legislation enabling the Secretariat to enforce its directives by means ofl including the resort to courts of law. At the moment the Secretariat, lacking such enabling legislation, proceeds by requesting other government agencies to take action when its (the Secretariat's) own directives have not been heeded.

The above state of affairs (i.e. absence of a legislative basis) is a major shortcoming. The other shortcoming arises from the fact that the Secretariat does not have offices stationed throughout the country at large. Its officers are all based in Nairobi with the result that the Secretariat is unable to maintain regular monitoring of the situation in the country generally. At the local level, environmental management and pollution control are undertaken by department officials of the various ministries, depending of course, on the nature of authority and functions given to each such department under relevant legislation.

Before concluding this part of the study, it is important to put on record the role and functions of two committees whose contribution to the country's environmental management effort has been critical. The Inter-Ministerial Committee on Human Environment is convened by the National Environment Secretariat and its members are drawn from government ministries, parastatals and non-governmental organizations (NGOs). The Committee discusses policy issues and makes recommendations to the Government, and its views on investment proposals which come up before the New Projects Committee are often decisive.

The Committee, which includes ministries, parastatals and non-governmental organizations (whose activities relate to environmental questions) consists of a representative of each of the 26 ministries, and of parastatals whose activities impinge on the environment such as tne industry and commercial development corporation, Kenya Ports Authority, Development Authorities relating to the Athi and Tana Rivers, Lake Victoria and the Kerio Valley. Among the NGOs who sit on the committee are the National Council of Women of Kenya, Men of the Trees, the Jaycees, etc. The official number of members is 50 although it is not often that they would all attend the committee meetings. The authoritative basis of the committee's work derives from that of the Secretariat to establish committees and similar organs to offer it expert or broadly-based opinion on its work.

The chairman of the committee is the Director of the National Environment Secretariat while the secretary is also drawn from the same institution. The practice of the committee is to hold one meeting every month, but this does not always happen especially when there is no business for the committee to transact. The two areas in which the committee has made the greatest contributions are in the preparation of the country's participation in the sessions of the UNEP Governing Council which takes place each year in Nairobi. Different members of the committee prepare the country's position on the various matters on the session's agenda and they subsequently present it at the sessions.

The second area in which the committee has made an important contribution is in the evaluation of the impact of proposed investment on the environment. Such investment proposals are first submitted to the New Projects committee of the Ministry of Industry which in turn seeks the views of the Secretariat on the same. At this stage the Secretariat convenes the committee and the matter is discussed and the recommendations of this body are then sent to the Ministry of Industry. Such recommendations are treated seriously by the latter Ministry since they emanate from a body which is representative of government agencies as well as parastatals and NGOs.

The other committee worthy of note is the National Anti-Marine Pollution Committee which consists of representatives of government ministries, private industry (especially the hotel sector) and NGOs. This committee is intended to respond to oil spill incidents within the territorial waters and the Exclusive Economic Zone. Resources available to the committee are pooled from the institutions represented on it, including those of the navy. The Presidential Proclamation on the Exclusive Economic Zone was made at a time when a growing number of coastal States were declaring their intention to exercise some kind of authority over the 200-mile zone of the high seas contiguous to their territorial waters. As in the case of these other States, Kenya's action was motivated by a desire to regulate the exploitation of the resources within this zone and especially so that harmful activities or incidents such as pollution could be dealt with in order to avoid the destruction of such resources. Several arguments were advanced by States to justify the extension of national authority into the high seas and Professor Dupuy has analysed them (R.J. Dupuy, The Law of the Sea - Current Problems. Ocean Publications, Inc., 1974). At the national level the legal basis of the proclamation rests on Section 127(1) of the Constitution which empowers the President to make "adaptations, modifications or qualifications of any law" as may appear to him to be necessary or expedient for ensuring effective government. Actions taken under this provision are of a temporary nature and strictly speaking could not obtain for more than six months. Being in the national interest, however, and affecting no political or economic interests of its nationals, there has been no compelling reason for its periodic renewal from the point of view of the Government. And as similar declarations by other States have increased, no foreign State has challenged the validity of the country's proclamation in the context of its own laws. The situation is now different, of course, the conception of the exclusive economic zone having been incorporated in the United Nations Convention of the Law of the Sea which was signed at Montego Bay, Jamaica on 10 December 1982.

Evaluation

The performance of the institutions in implementing laws relating to environmental management and pollution control has been impressive considering the limited resources available to them. They could have performed even better were it not for some institutional weaknesses which are in-built in the relevant environmental management systems.

Firstly, the various laws relating to the questions under discussion were enacted at a time when environmental factors were not given their proper place in resource management. Accordingly, there is a tendency to deal with resource management issues without giving due weight to environmental factors. Secondly, the copious legislation in the country's statute books establishes institutions in such a way that no mechanisms are created to co-ordinate their operations. This becomes critical where, in the absence of an agreed policy, each institution pursues what it perceives to be the best policy from a departmental point of view. This has the

potential to create a situation of institutional paralysis or conflict. Thirdly, the manpower resources, adequately trained for the purpose, are still limited and from an environmental management viewpoint this may be more important than the question of financial or material resources.

The personnel professionally qualified for the task are to be found mainly in the National Environment Secretariat where they number 60 officers, with the Ministry of Water Development having about ten officers dealing with pollution control matters. The Ministry of Health has a big contingent of officers dealing with sewage disposal, waste control and disposal, chemical pollution control, etc. Other ministries, such as Agriculture, Industry, etc., have functions which relate to environmental management but their officers would normally treat environmental issues as peripheral to their schedules.

In view of the above factors, one is sometimes struck by surprise at seeing cases which should receive attention and which do not until it is too late. The numerous cases of excavations which are abandoned without secure fencing or without being refilled, only arise when the unwary fall in with critical or fatal consequences. To be fair, however, it should be added that on the whole, the institutions have done a better job than the resources available would otherwise suggest, especially when it is borne in mind that the manpower and technological resources available for monitoring the performance of the mining industry are limited.

CONCLUSION

An identification of the trends in marine environmental management legislation and administration must be undertaken in the overall context of environmental management in the whole country. Accordingly, it is to be noted that the subject is now receiving total political support from the highest levels in Government. This support is crucial in a situation in which what may at times be unpopular measures or where meagre (human and financial) resources have to be re-deployed in favour of environmental management. The Government has spared no effort in stating its total commitment to environmental management, and the Head of State, as a result of his position on this subject, has been instrumental in shaping public policy. The presence of the United Nations Environment Programme headquarters in Kenya has also contributed to a sharpening of attitudes especially because of the publicity given to the numerous professional gatherings which take place in the country under its auspices. The fact that the country has a number of NGOs active in environmental management issues has helped to raise awareness of the growing importance of environmental issues in the context of overall national development.

The judicious management of the country's marine environment is now being seen as a critical factor in enhancing the contribution which the coastal and marine environment makes to the national economy. The marine fisheries are being seen as an important source of food as well as a source of employment for a growing number of people. Thus, any situation or activity which has the potential to degrade or destroy this economic base is likely to be stopped by the relevant public authorities. It is in the same light that one should anticipate the measures Government is likely to take in relation to those activities which threaten the viability of the marine national parks already established. The emerging trends in marine environmental management legislation have also been influenced by work which

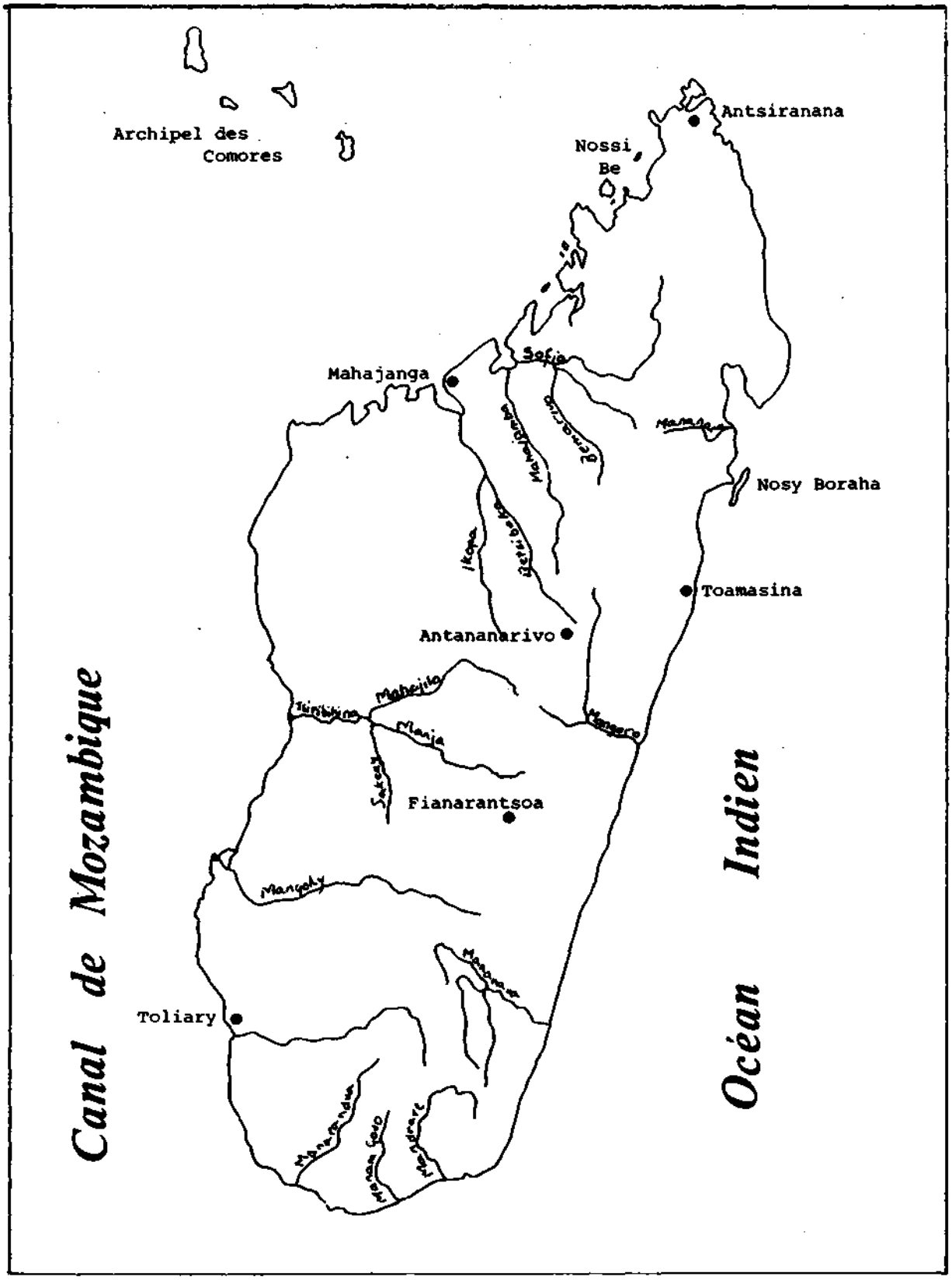
the International Oceanographic Commission (IOC) has intitiated to study fishery potentials, their management and utilization aspects. What has so far been learned has shown that the legislation currently in force may not provide the most efficent base to achieve management goals which the country has set itself. The current legislation, namely, the Fish Industry Act, does not provide clear provisions on the management of fisheries or matters such as allowable catches, prohibition of destructive fishing methods such as the use of poisons and explosives, the registration of fishing vessels in inland bodies of water such as Lake Turkana and the licensing of foreign fishing vessels operating with the country's territorial waters and the Exclusive Economic Zone.

The Government has also accepted the assistance of the International Maritime Organization (IMO) in drawing up an integrated maritime policy for the country. This exercise will involve a re-examination of existing legislation and institutions with a view to recommending the adoption of a legislative and institutional framework which is integrated in itself and which dovetails efficiently within the existing national policy. The determination of the country to adopt legislation which would facilitate the realization of the goals of better management of the coastal and marine resources can be seen in the fact that there are at present three legislative proposals due to be presented to the country's legislature for enactment. The first is the Fisheries Bill which contains very specific provisions on the management and utilization of marine fisheries. The Bill contains extensive provisions on regulatory aspects of fisheries development. It was drafted to incorporate the recommendations of an FAO consultant whose report had examined broad and utilization management policy issues. One sees few prospects of opposition to this Bill within the legislature since it responds to a need which has long been felt. This apart, the Bill has been discussed exhaustively at different fora attended by all interested ministries and the text has been revised a number of times to accommodate aspects which they consider important.

The second legislative proposal which will soon be tabled by Parliament is the Maritime Zones Bill which is principally aimed at regularizing the exercise of jurisdiction within the Exclusive Economic Zone following the 1978 Presidential Proclamation and now that the exercise of such jurisdiction is gaining universal acceptance with the conclusion of the negotiations for and signature of the United Nations Convention on the Law of the Sea. Again there is little reason to fear that the Bill will be opposed in Parliament where, in fact, calls have been made for stricter governmental control of the foreign exploitation of the country's resources.

The third legislative proposal which will have important implications for marine environmental management is the National Environment Management and Enhancement Bill which will, for the first time, confer specific powers on the National Environment Secretariat, including the power of the Secretariat to require the submission of environmental impact reports, to lay down standards and to enforce, by administrative orders as well as court action, the various laws relating to marine environmental management. The power to require environmental impact assessment reports is crucial and while such reports are required now, the power to do so is administrative in nature and in any case is part of the work of the New Projects Committee. This means that it is conceivable that the Secretariat would not have the legal basis for requiring such reports on its own. Nor is the Secretariat capable of enforcing the relevant laws, since at present they confer powers on institutions which do not have the mandate of overall environmental management policies.

At present, the Government has indicated its intention of examining a number of conventions in the field of environment with a view to ratifying them. Seen in the context of what the country is already doing in the national arena, the proposed action in the field of international environmental law can only serve to strengthen the policies and institutions which are already in place.


Archipel des Comores
Nossi Be
Antsiranana
Mahajanga
Sofia
Nosy Boraha
Toamasina
Antananarivo
Fianarantsoa
Toliary
Canal de Mozambique
Océan Indien

RAPPORT NATIONAL MALGACHE :

par

Ph. Randrianarijaona et E. Razafimbelo

INTRODUCTION

Madagascar, s'étendant sur une longueur de 1 650 km, du 12ème au 25ème degré de latitude sud, est presque entièrement dans la zone tropicale. Sur le littoral, la température moyenne annuelle dépend de la latitude; elle décroît assez régulièrement de 25 degrés dans l'extrême nord a 23 degrés dans le Sud. La côte ouest est plus chaude que la côte est de 1 degré à 3 degrés à latitude égale. La longueur des côtes est de 4 000 km et la population côtière est estimée a 2 500 000 habitants.

Les villes côtières sont indiquées au tableau I, les principaux ports et leurs opérations au tableau II et les principales denrées exportées et importées par mer au tableau III.

Tableau I

Principales villes côtières :	Habitants
Toamasina	68 848
Mahajanga	71 843
Antsiranana	32 453
Toliary	54 856
Vatomandry	5 106
Mahanoro	5 281
Mananjary	15 384
Manakara	23 314
Vohipeno	3 100
Farafangana	15 633
Vangaindrano	19 862
Taolagnaro	19 808
Soanierana Ivongo	2 803
Moroantsetra	11 132
Antalaha	21 769
Sambava	7 521
Vohémar	4 135
Nossi-bé (Hell-ville)	33 515
Analalava	5 100
Besalampy	2 853
Maintirano	9 800
Morondava	28 200
Belo sur Tsiribihina	4 200
Morombe	6 747
Ambovombe	2 329

Tableau II - Liste des ports de Madagascar
(dont les principaux sont soulignés)

Source: Service des Douanes

Unité: Tonne

Opérations	DEBARQUEMENT CABOTAGE		EMBARQUEMENT CABOTAGE	
Ports	Marchandise sèches	Hydrocarbures	Marchandise sèches	Hydrocarbures
Antsiranana	11 755	23 636	47 684	22 471
Vohémar	17 725	6 745	4 715	3
Sambava	250	-	1 887	-
Antalaha	1 782	-	1 684	-
Maroantsetra	4 209	-	3 103	-
Toamasina	63 461	14 112	42 114	102 237
Manankara	18 049	12 516	16 742	-
Taolagnaro	8 674	6 430	1 394	1
Nossi-bé, Port-St. Louis	8 409	14 714	49 624	26 177
Analalava-Antsohihy	8 690	5 468	1 092	-
Mahajanga	68 998	49 682	31 664	762
Morondava	8 581	3 446	611	104
Morombe	1 270	1 270	1 164	-
Toliary	13 081	14 203	10 547	7
Mananjary	14 311	1 522	3 757	-
TOTAL	249 245	153 744	217 782	152 762

Tableau III - Principales denrées exportées et importées par mer (année: 1982)

Exportation (tonnes)

Crustacés, poisson environ		4 800
Viandes et dérivés	"	1 500
Café	"	55 000
Poivre	"	3 000
Vanille	"	380
Girofle	"	10 250
Sucre	"	12 000
Mélasses	"	20 000
Graphite	"	16 000
Chromite	"	45 000
Produits pétroliers raffinés	"	84 000
Fibres végétales et sisal	"	14 400
Coton et tissu en coton	"	3 700

Importation (tonnes)

Riz farines	environ	230 000
Huiles alimentaires	"	10 800
Ciments	"	144 000
Charbons, cokes	"	14 300
Pétrole brut	"	318 000
Produits pétroliers raffinés	"	145 000
Produits chimiques	"	14 700

Sources principales de pollution telluriques

L'érosion des sols

L'érosion du sol constitue sans aucun doute l'élément majeur de la pollution marine à Madagascar. Les deux tiers de la superficie de l'Ile, constitués de hautes terres à savane, sont exposés à de graves phénomènes d'érosion. Les quantités de masses de terres arrachées sur les bassins versants atteignent 25 à 300 tonnes/ha/an d'après les longues mesures effectuées dans les stations d'observation de conservation des sols. Les mêmes mesures ont accusé un indice d'érodibilité du sol généralement supérieur à la moyenne rencontrée dans les pays tropicaux (plus de 0,2 a l'échelle Wischmeier).

De telles mesures de terres sont en majeure partie drainées vers la mer par une quarantaine de cours d'eau, dont les bassins versants représentent 458 327 km2, soit 77% de la surface du pays. Des observations ont révélé que d'énormes quantités de vases colloïdales se déposent chaque annee à l'embouchure de ces cours d'eau. Les estimations de Crouzet (Ponts et Chaussées) situent les valeurs de ces sédimentations à 15 millions m3 par an dans le seul estuaire de la Betsiboka (Majunga). Ce chiffre a été confirmé par le Commandant Beauchêne lequel estime que 50 millions m3 au moins se déposent annuellement a cet endroit de 1948 a 1956. M. Bresson (de l'ORSTROM) a établi d'autre part que le fleuve Mangoky charrie de la hauteur du Benian 5 a 19 millions de tonnes de terres entre 1951 et 1955 (cf tableau IV).

Tableau IV

Débits estimatifs des principaux fleuves à l'embouchure
(d'après le Service de la Météorologie Nationale)

Mahajamba	310 m3/s
Betsiboka	955 m3/s
Tsiribihina	560 m3/s
Mangoky	400 m3/s
Onilahy	102 m3/s
Menarandra	20 m3/s
Manambovo	5,0 m3/s
Mandrare	55 m3/s
Mananara	460 m3/s
Mangoro	830 m3/s
Sofia	550 m3/s

(localisation: cf planche)

En se fondant sur ces diverses estimations, on peut conjecturer que, pour l'ensemble du réseau hydrologique de l'île, l'envasement côtier et marin par l'érosion des hautes terres est loin d'être la pratique du feu de brousse. Les mesures prises contre ce fléau sont surtout à Madagascar d'ordre législatif. La réglementation est très sévère (jusqu'à 20 ans d'emprisonnement et même jusqu'aux travaux forcés à pérpétuité), mais elle a une portée plutôt limitée.

Autres sources de pollution

La pollution occasionnée par la présence des agglomérations rurales côtières n'est pas négligeable. Elle est surtout liée à la précarité ou à l'inexistence des dispositifs d'assainissement. Ces dispositifs font généralement défaut dans les agglomérations autres que les grands ports. Il faut comprendre dans ces dispositifs les installations sanitaires. L'évacuation des déchets, liquides comme solides, est le plus souvent mal assurée. La partie de la population desservie par des égoûts est estimée à 3 pour cent. Les plages sont généralement polluées.

La lutte contre ces types de pollution n'a pas fait l'objet de dispositions législatives. Par contre, des campagnes d'éducation et de sensibilisation sont menées sans relâche par le Ministère de la santé (contacts directs des agents de la santé avec la population, émissions radiophoniques, etc.). On sait que dans ces conditions de lutte, les résultats sont plutôt lents à venir, faute surtout de mesures répressives.

Activités d'exploration et d'exploitation en mer

Pêche

La pêche crevettière côtière est une activité assez importante à Madagascar. Cette industrie a débuté depuis 1967 et, en ce moment, quatre sociétés sont en activité:

- La Société des Pêcheries de Nosy-be (PNB), à Nosy-Be
- La Société Malgache de Pêcherie (SOMAPECHE), à Mahajanga
- La Société des Pêcheries du Boina (SOPEBO), à Mahajanga
- La Société REFRIGEPECHE qui est basée à Toamasina et travaille essentiellement dans cette région.

Les trois premières sociétés exploitent les ressources des zones nord-ouest et ouest de l'ile. La technique utilisée est celle du double tangon floridien. Les espèces capturées et exportées sont, par ordre d'importance:

- Penaeus indicus ou "white" et qui constitue jusqu'à 95% des captures
- Metapenaeus monoceros ou "pink"
- Penaeus semisulcatus)
- Penaeus japonicus) ou "tiger"
- Penaeus monodon)

Ces sociétés, sauf la REFRIGEPECHE, pêchent donc plutôt les crevettes et malheureusement rejettent à la mer certains poissons d'accompagnement. Les habitants du littoral, ceux de Morondava surtout, se plaignent de ce méfait qui constitue non seulement une atteinte à la pérennité du stock mais également un facteur de pollution du littoral puisque ces poissons sont rejetés déjà morts.

A part ce secteur industriel assez développé, (la pêche au large n'est pas encore pratiquée à Madagascar) les pêcheurs traditionnels, avec leurs moyens de fortune, consomment une large part de leurs captures et destinent le reste au marché local. Les langoustes font l'objet d'une transformation industrielle dans le sud-est de l'île.

Autres renseignements sur l'environnement cotier dû pays

On note l'existence de quelque 300 000 hectares de mangroves notamment localisées sur les côtes ouest et nord-ouest ainsi que de recifs et de bancs coralliens sur ces littoraux. On note aussi la prospection pétrolière sur la côte ouest.

ASPECTS INTERNATIONAUX

Madagascar est partie à 12 Conventions internationales sur les 28 mentionnées dans le canevas-guide fourni aux auteurs. Elle a accédé à sept d'entre elles, à savoir:

- La Convention internationale pour la prévention de la pollution des eaux de la mer par les hydrocarbures, Londres, 1954, amendée en 1962 et 1969; 9 ILM 1.

- Règles internationales pour prévenir les abordages en mer, Londres 1960, publication OMI 1960.

- Convention internationale pour la sauvegarde de la vie en mer, Londres, 1974; IML 963, FUST 974 : 81.

- Convention internationale sur la limitation de la responsabilité des propriétaires de navires de mer, Bruxelles, 1957; 9 DMF 721, FUST 957 : 76.

- Convention sur la haute mer, Genève, 1958; 450 RT.

- Convention sur le plateau continental, Genève, 1958; 499 RT.

- Traité sur l'interdiction des essais d'armes nucléaires dans l'atmosphère, dans l'espace extra-atmosphérique et sous l'eau;

et en a ratifiée cinq :

- Convention internationale pour la sauvegarde de la vie en mer, Londres 1974; 14 ILM 963, FUST 974 : 81.

- Convention africaine sur la conservation de la nature et des ressources naturelles, Alger, 1968; FUST 968 : 68.

- Convention sur le commerce international des espèces sauvages de faune et de flore menacées d'extinction, Washington 1973; FUST 973 : 18.

- Charte de l'Organisation de l'Unité Africaine, Addis-Abeba, 1963;479 RT.

- Convention patrimoine mondiale UNESCO Novembre 1982.

Dix accessions ou ratifications ont fait l'objet d'adoption de textes nationaux, lois, ordonnances ou arrêtés. Les références et les dates relatives à ces différentes procédures figurent dans le tableau V.

ASPECTS NATIONAUX

Il existe de nombreaux textes nationaux régissant la protection et la sauvegarde de l'environnement en général, mais la plupart d'entre eux se limitent à la protection des écosystèmes terrestres. Cet état de fait tient à ce que les écosystèmes de Madagascar sont constamment en danger en raison des menaces de toutes sortes qu'ils ont à subir (pressions humaines, extension de l'agriculture, feux de brousse, érosion du sol, exploitations abusives des forêts etc.)

Par contre la législation intéressant la protection de l'environnement marin reste très peu fournie. Dans les rares cas où elle existe, elle reste le corollaire des dispositions de la réglementation internationale afférente aux différentes conventions multilatérales auxquelles Madagascar est partie. Les textes actuellement en vigueur peuvent être rapidement analysés comme il suit.

Sur la pollution par les hydrocarbures

La pollution marine provenant des rejets d'hydrocarbures est régié à Madagascar par les dispositions générales de la Convention de Londres de 1954 amendée en 1962 et en 1969. Les décisions du Gouvernement sur l'acceptation du texte primitif et des textes amendés ont été respectivement prises le 16 décembre 1964 et le 5 août 1970. L'instrument d'acceptation a été par la suite dûment déposé. Le texte intégral de la convention, deux fois amendé, a fait l'objet d'une publication au journal officiel de la République Malgache en annexe de l'arrêté no. 497 du 8 février 1971. Ainsi, Madagascar, en vertu du principe du droit positif, en s'appropriant le texte intégral de la convention, entend appliquer sans restrictions ni réserves les dispositions de ce dernier.

Par ailleurs, les règlements régissant la manipulation des hydrocarbures sont fondés sur les dispositions d'OILPOL 54/59 et MARPOL 73/76. L'entrée en vigueur de MARPOL 73 (en octobre 1983) aura été suivie de mesures prises à l'échelon national par les autorités chargées de veiller sur la question.

C'est dans ce contexte que pour l'application des règlements, la SOLIMA, société nationale responsable des opérations, se déclare satisfaite des précautions techniques qu'elle a prises en la matière. Aucune sanction ne semble avoir été opposable à la société. Le contrôle et l'inspection sont assurés par le bureau français VERITAS. Les deux caboteurs pétroliers Isimiroro et Bemolanga actuellement en service pour la distribution des produits sur les 15 ports malgaches sont équipés conformément aux normes édictées par OILPOL 54/68. Le troisième baptisé Isimiseraka, insuffisamment équipé, ne semble présenter aucun danger du fait que les produits transportés sont des produits blancs.

Isimiroro et Bemolanga sont équipés de "slop tanks" permettant de séparer les fuels résidus restant après le déchargement. Ces résidus mouillés et passés à la centrifugation sont restitués à la raffinerie de Toamasina, l'eau étant pompée vers la sortie.

L'institution des registres d'hydrocarbures conformes aux dispositions annexées a la Convention de 1954 s'applique de plein droit dans le pays. L'évacuation de l'eau de rinçage ne peut se faire qu'au-delà des limites des eaux territoriales.

Sur la pollution par l'exploitation de la mer

Exploitation de ressources vivantes

En ce qui concerne les pêches d'une façon générale, les textes déterminent (Décret du 5 juin 1922 : relatif à la pêche fluviale à Madagascar et à la pêche maritime côtière ; code maritime de l'Ordonnance no. 60.047 du 15 juin 1960, Livre V : réglémentation de la pêche, Livre VI, chapitre VI : délits concernant la police de pêches maritimes) :

- l'étendue de la côte devant laquelle la pêche de chaque espèce est permise;
- la distance de la côte ainsi que des embouchures des rivières, étangs ou canaux à laquelle les pêcheurs devront se tenir;
- les époques d'ouverture et de clôture de diverses pêches; l'indication de celles qui seront libres toute l'année;
- les filets, engins, instruments de pêche prohibés;
- les dispostions propres à prévenir la destruction du frai et assurer la conservation des ressources;
- les interdictions relatives à la pêche, à la mise en vente, à l'achat, au transport, colportage ou à l'emploi du frai, de certaines espèces qui n'atteignent pas les dimensions prescrites;
- les conditions d'établissement et d'exploitation de pêcheries;
- les appâts défendus;
- les mesures d'ordre et de police tant en mer que sur le littoral propres à assurer la conservation de la pêche qu'à en régler l'exercice.

En outre, des dispositions pénales sont prévues pour les délits commis. Parmi les délits concernant la police des pêches maritimes il faut citer :

- l'usage pour la pêche de la dynamite ou de toute autre matière explosive (passible d'amende et d'un emprisonnement);

- l'usage de substance ou d'appâts pouvant enivrer ou détruire les poissons, crustacés et coquillages (passible des mêmes peines citées ci-dessus);

- la détention à bord d'un bateau armé pour la pêche ou s'y livrant en fait, soit de la dynamite ou des matières explosives autres que la poudre pour l'usage des armes à feu, soit des substances ou des appâts dont l'emploi est interdit.

Remarques

Les appâts défendus et substances nocives n'ont jusqu'à présent fait l'objet d'une définition précise. Si le législateur a pris ces dispositions, c'était sans doute à titre préventif et les autorités administratives pourront prendre des textes plus précis (ex : Arrêtés) ne s'échappant pas de ce cadre général déjà tracé.

La pollution n'a pas fait l'objet de réglementations précises dans le domaine haléutique. Cependant on pourrait considérer que ces mesures contre les substances nocives reflètent déjà l'intention manifestée dans ce sens. Il est toutefois opportun d'ajouter que certains cas de pollution déjà constatés (rejet a la mer des poissons d'accompagnement morts par les chalutiers) fassent l'objet d'un texte concret du fait que les sociétés de pêche en activité à l'heure actuelle se soucient peu de la possibilité de valoriser ces produits "gaspillés" inutilement et devenus sources de pollution alors que pouvant servir d'aliment aux humains ou aux animaux (dans ce dernier cas transformés en farine).

Exploitation d'hydrocarbures

Les activités liées aux exploitations d'hydrocarbures en zones marines relevant du territoire sont réglémentées par le Code pétrolier (ordonnance no. 62-105 du 1 octobre 1965) récemment revisée suivant la disposition de la loi no. 80-001 du 6 juin 1980.

Ce code pétrolier stipule principalement:

- que le droit d'exploiter les ressources minières en général et pétrolières en particulier appartient à l'Etat

- que la législation malgache s'applique aux exploitations, aux prospections, aux recherches et aux transports des hydrocarbures entrepris à l'intérieur du territoire

- que toute exploitation, toute prospection, toute recherche, tout transport de ressources pétrolières sont subordonnés à l'obtention d'un titre minier délivré par le Président de la République à travers le service compétent

- qu'en conséquence l'appréciation de tout litige relève principalement de la compétence de la juridiction nationale

- que toutes activités attachées aux exploitations des ressources naturelles d'hydrocarbures sont réservées aux sociétés nationales auxquelles peuvent cependant s'associer des sociétés étrangères par apport de prestations de

- que toutes infractions aux dispositions du Code pétrolier et des textes subséquents sont recherchées et constatées par des agents de l'Etat spécialement habilités a cet effet

- que suivant l'article 77, les peines encourues par tout contrevenant peuvent aller de six mois à cinq ans d'emprisonnement avec paiement d'une amende de 1 000 000 à 10 000 000 de francs malagasy sans préjudice de la confiscation des produits et des matériels.

Le Titre VI de la loi précise, en ce qui concerne les hydrocarbures en mer:

- qu'en général, la législation nationale régissant les activités liées aux prospections ou aux recherches pétrolières s'applique à ce genre d'entreprise

- qu'en particulier, l'exploitant est tenu, une fois son entreprise terminée, de tenir la zone prospectée et ses abords nets de tout encombrement pouvant résulter de ses installations ou dispositifs de prospection (plateformes et annexes, engins de prospection et annexes, bâtiments de mer, etc.)

Pour ce qui est de la pollution, la loi 80-001 prévoit en son article 84 que les conventions internationales relatives a la pollution marine auxquelles Madagascar est partie sont "applicables aux infractions réprimées par le présent code".

A cet effet, l'article 82 précise que:

"Sans préjudice de l'applications des lois et règlements concernant la répression de la pollution des eaux de la mer par les hydrocarbures, aux installations et dispositifs visés au Titre VI, sera passible de sanctions prévues a l'article 77 ci-dessus, quiconque aura, au cours des opérations d'exploration ou d'exploitation d'hydrocarbures dans les zones maritimes malgaches, déversé ou laissé échapper dans la mer, à partir d'une installation ou d'un dispositif visé au Titre VI du présent code, des produits énumérés au paragraphe premier de l'article 3 de la Convention Internationale pour la prévention de la pollution des eaux de la mer par les hydrocarbures, signée a Londres le 12 mai 1954, tels qu'ils sont définis à l'article premier, paragraphe premier de la dite convention".

Sur l'utilisation de l'eau de mer (usages industriels)

Madagascar ne dispose à l'heure actuelle d'aucun texte législatif se rapportant à l'utilisation de l'eau de mer soit pour des fins industrielles soit pour des fins artisanales.

Sur la pollution d'origine tellurique

Sur la pollution liée aux exploitations minières

Le code minier constitué par trois ordonnances (Ordonnance no. 60.090 du 5/9/60, Ordonnance no. 62.103 due 1/10/62 et Ordonnance no. 64.360 du 9/9/64) reste muet sur le problème de la pollution.

Sur la pollution provenant des exploitations pétrolières "on shore"

Le code pétrolier (loi no. 80.001 du 6/6/80) n'est pas explicite sur le cas de pollution occasionée par les exploitations d'hydrocarbures en zônes terrestres.

Sur la pollution provenant de l'exploitation des établissements commerciaux et industriels

On ne peut citer aucun texte réglementaire relatif à la pollution par ce genre d'exploitation. Par contre, des enquêtes préalables "commodo et incommodo" s'attachent à analyser les problèmes lors des implantations et ce afin de prévoir les risques de pollution. Les dispositions jugées appropriées sont explicitées pour chaque cas dans des cahiers de charges spécieux quand il s'agit d'installations particulièrement polluantes.

Sur la pollution résultant de la dégradation du sol

La sédimentation et l'envasement des estuaires et des embouchures des grands fleuves constituent un élément majeur de la pollution côtière et marine. La dégradation du sol des hautes terres se trouve être la première responsable de cet état de fait. Une législation assez fournie s'attache a contrecarrer le développement du phénomène. On peut signaler le Décret forestier du 25 janvier 1930 et l'Arrêté du 14 janvier 1937 qui sont en réalité les bases de cette législation tandis que l'Ordonnance no. 60.127 du 3/10/60 sur le régime des défrichements et des feux de végétation et son décret d'application no. 61.079 du 6/2/61 en constituent la pièce maîtresse en ce qui concerne la sauvegarde de l'environnement en général et de la protection du sol en particulier.

Ces derniers textes s'attachent à réglementer les feux de végétation et les défrichements en tant que principales causes de la dégradation du sol.

Les feux de végétation ne sont admis qu'au cas où ils ont pour but de renouveler les pâturages (soumis à une autorisation écrite délivrée par les Eaux et Forêts). La mise à feu ne doit jamais être pratiquée dans des zônes vulnérables, ni à des périodes critiques (saison sèche où l'inflammabilité des broussailles atteint son point maximum).

Les défrichements (abattage d'arbres suivi d'incinération) sont interdits dans les "zônes en défens" sur les versants des collines présentant une pente supérieure à 50%, sur les terrains à ravinements dangereux, sur le littoral, sur les berges des cours d'eau, etc.

Les peines prévues par l'Ordonnance no. 76.030 du 21/8/76 sont extrêmement sévères (contraintes par corps pouvant aller jusqu'à 20 ans ou travaux forcés à perpetuité pour des mises à feu associées à des actes de vandalisme).

Sur les aires protégés, parcs marins

La pollution relative aux aires protégées côtières et parcs marins ne fait l'objet d'aucun texte législatif national.

Cependant, pour des cas d'intérêt particulier, les autorités administratives du littoral peuvent se réserver le droit de prendre des mesures dans ce sens et ce, à titre tout à fait local ou régional (protection des dunes, des berges ou d'autres zones en défens pour prévenir la pollution marine).

Le cas particulier des mangroves (300 000ha.) risque d'être préoccupant à brève échéance. Ce type de peuplement est protégé par les dispositions du Décret forestier du 15 janvier 1930 et de son arrêté d'application. Il est ainsi jusqu'à ce jour à peu près à l'abri de toute exploitation abusive. Mais l'épuisement des boisements côtiers susceptibles de fournir des bois de service et de chauffage est de nature a exposer ces peuplements a des exploitations destructives.

Sur le développement du tourisme

Les industries hôtelières, comme toutes les industries implantées sur le littoral, sont soumises aux mêmes dispositions que d'autres établissements commercieux.

Sur le cadre administratif et les institutions s'occupant de la gestion de l'environnement et du contrôle des pollutions

Au niveau local

Le contrôle de la pollution par les hydrocarbures est exercé par:

- les officiers et sous-officiers mariniers commandant les bâtiments ou embarcations de l'Etat (qui relèvant soit du Ministère de la Défense, soit du Ministère des Transports, soit des Sociétés Nationales de Navigation ou d'exploitation pétrolières)

- les Chefs de bord des aéronefs de l'Etat

- les Chefs d'Arrondissements et les Chefs des Sous-Arrondissements maritimes

- les agents des Douanes et des Contributions indirectes

- les agents du Centre National des Recherches Océanographiques (actuellement ce centre est en train de mettre en route un projet d'étude sur la pollution marine.)

- et éventuellement par les membres des collectivités décentralisées ou tout agent spécialement habilité à cet effet.

Le contrôle de la pollution par les autres substances ou matières:

telluriques: par les agents forestiers, les gendarmes, les agents de police judiciare.

autres que telluriques (poissons morts, substances toxiques enivrant les poissons, etc) : par les agents des Pêches Maritimes, les Officiers mariniers, Commandants des bâtiments appartenant à l'Etat, les Chefs d'Arrondissements et Sous-Arrondissements maritimes, les gendarmes, les agents des Douanes, les agents forestiers ainsi que les autres agents spécialement habilités à cet effet.

Au niveau central

La supervision du contrôle relève de la compétence des différents ministères auxquels sont attachés les agents de contrôle cités ci-dessus à savoir :

- Le Ministère des Transports
- Le Ministère de la Défense
- Le Ministère de la Production Agricole
- Le Ministère des Finances
- Le Ministère de l'Enseignement Supérieur et de la Recherche Scientifique.

Les règlements regissant les contrôles de la pollution qui incombent à ces différentes institutions sont liés aux attributions spécifiques des agents et établissements intéressés.

Conclusion partielle

Degré d'application des lois et règlements

L'acuité des problèmes de pollution amène le Gouvernement à prendre des mesures législatives généralement sévères. Cependant, l'application d'une telle législation est loin d'être facile pour des raisons d'ordre politique, sociologique, économique, par conséquent, le degré d'application des lois et règlements est relativement faible par rapport aux résultats escomptés.

Importances des ressources

Face à l'importance des problèmes du contrôle de la pollution et de la gestion de l'environnement, les ressources nationales (financières et humaines) sont vraiment dérisoires.

Conclusion générale

La tendance de la législation nationale en matière de gestion de l'environnement marin semble maintenant être du côté de l'assouplissement des mesures de répression. Cet état de fait se justifie par la relative inefficacité d'une loi trop sévère mais difficilement applicable.

La modicité des moyens disponibles à l'échelon national constitue un handicap sérieux à la protection des aires vulnérables (récifs coralliens, mangroves). Il faut ensuite envisager des solutions de rechange afin de détourner les populations de l'exploitation abusive de ces aires. Rien en effet ne permettra de mettre fin à l'exploitation des récifs coralliens ou des mangroves si on oublie d'aider les populations intéressées à trouver d'autres sources d'activité ou de matérieux de rechange. Ces considérations militent en faveur des mesures d'accompagnement sans quoi la législation pourrait être sans effet. Ces mesures pourraient consister dans la sensibilisation et la formation et/ou dans la formation des projets appropriés.

Une autre tendance de la législation est de chercher à se confronter avec les règlements internationaux, ce qui se traduit par la multiplicité des adhésions de Madagascar aux différentes conventions internationales. La similitude des problèmes entre Etats implique en effet une logique concertation pour aboutir à une solution commune au niveau de la région ou de la sous-région.

En ce qui concerne enfin la préparation de nouveaux lois et règlements se rapportant à la prévention de la pollution marine, on peut signaler que Madagascar s'en tient pour le moment à la législation existante moyennant certes un certain assouplissement.

MAURITIUS NATIONAL REPORT: by C. D'Arifat

INTRODUCTION

The island of Mauritius is triangular in shape. Its coastline extends over 200 kilometres. The approximate coastal population as at 30 June 1982 was 77,243 spread out around the island in 22 different localities, or an average of 3,511 persons per locality. This figure represents 8.11 per cent of the population of the island, estimated on 30 June 1982 at 949,686.

Port-Louis is the only port and lies on the western coast. It is a small bay surrounded by hills which make it safe from trade winds. No river flows into the harbour. The city of Port-Louis, the capital town and main trade centre, has grown around the harbour and is thronged during the day but deserted in the evenings and at night. The local population actually residing in Port-Louis is estimated at 147,000.

Mauritius has no navigable river. It is a volcanic island with two main watercourses in which the water runs through deep gorges and water-falls from the central plateau to the coast. Several affluents flow into the two watercourses, both of which have derived their names from the direction in which they flow to the sea. The main one is the Grand River South East with a measured flow at its estuary of 134 cusecs; the other is the Grand River North West which is just south of Port-Louis and has a measured flow of 27 cusecs. There are eight more important estuaries in Mauritius, namely:

Rivière des Créoles	(South East)	127	cusecs
Rivière La Chaux	(South East)	75	cusecs
Rivière du Poste	(South)	60	cusecs
Rivière Tamarin	(West)	47.5	cusecs
Rivière Baie du Cap	(South West)	37	cusecs
Rivière des Anguilles	(South)	18	cusecs
Rivière du Tombeau	(North West)	17.5	cusecs
Rivière du Rempart	(North East)	5.5	cusecs

Data are insufficient to ascertain the existence or the degree of land-based pollution. Enquiries have revealed fears rather than causes and those most often referred to are:

(a) The use of pesticides as weed killers in the sugar cane fields;

(b) The residue of sugar mills thrown into rivers near the coast;

(c) The use of dynamite by unlicensed fishermen.

There is no coastal navigation as such, but there are regular maritime communications between Mauritius and Rodrigues. During the year 1 July 1981 to 30 June 1982, 429 merchant ships called at Port-Louis harbour. The Mauritius Marine Authority listed their cargoes as follows:

General cargo	10
Unitized cargo	90
Containerized cargo	191
Interisland trade vessels	27
Rice	6
Sugar	35
Cement	24
Fertilizer	7
Petroleum products	24
Molasses	7
Edible oil	8

Other vessels, 528 in number, including fishing boats, yachts, bunkers, pleasure steamers, warships, scientific research vessels and tugs, called at Port-Louis in the same year.

During the same period the imports and exports were as follows:

	(metric tons) Import	Export
Bagged cargo	103 360	nil
Bulk cargo	579 630	714 158
General	72 273	2 360
Containerized cargo	139 256	52 892
Miscellaneous	33 507	33 171
TOTAL:	928 026	802 581

There are no offshore exploration and exploitation activities.

INTERNATIONAL ASPECTS

The information asked for is not readily available. The sources of information which could be expected to supply the answers are not prepared to make a definite statement. From unofficial sources it would appear that Mauritius has not ratified items:

(3) International Convention for the Prevention of Pollution from Ships, London, 1973 (MARPOL);

(4) Protocol relating to International Convention for the Prevention of Pollution from Ships, London, 1978, FUST 978:13;

(5) International Regulations for Preventing Collisions at Sea, London, 1960;

(6) 1972 Amendments to the 1960 International Regulations for Preventing Collisions at Sea;

(7) International Convention for the Safety of Life at Sea, London, 1974;

(8) International Protocol Relating to the International Convention for the Safety of Life at Sea, London, 1978;

(9) International Convention Relating to the Intervention on the High Seas in Cases of Oil Pollution Casualties, Brussels, 1969;

(10) Protocol Relating to Intervention on the High Seas in Cases of Marine Pollution by Substances Other than Oil, London, 1973;

(11) International Convention on Civil Liability for Oil Pollution Damage, Brussels, 1969;

(12) International Convention on the Establishment of an International Fund for Compensation of Oil Pollution Damage, Brussels, 1971;

(13) International Convention on the Liability of Operators of Nuclear Ships, Brussels, 1962;

(16) Protocol Amending the International Convention Relating to the Limitation of the Liability of Owners of Sea-going Ships, Brussels, 1979;

(17) Convention on Limitation of Liability for Maritime Claims, London, 1976;

(20) Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters, London, 1972;

(23) Convention on the Prohibition of Military or Any Other Hostile Use of Environmental Modification Techniques, Geneva, 1977;

(24) African Convention on the Conservation of Nature and Natural Resources, Algiers, 1968;

(25) Convention on the Conservation of Migratory Species of Wild Animals, Bonn, 1979;

may have ratified items:

(22) Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil thereof, Washington/London/Moscow, 1971;

(26) Convention on International Trade in Endangered Species of Wild Fauna and Flora, Washington, 1973;

has ratified items:

(18) Convention on the High Seas, Geneva, 1958;

(19) Convention on the Continental Shelf, Geneva, 1958;

(27) United Nations Convention on the Law of the Sea, Kingston, 1982;

(28) Charter of the Organization of African Unity, Addis Ababa, 1963.

However, the dates of signatures and ratification are not available. In the case of item 19, Convention on the Continental Shelf, Geneva 1958, the Continental Shelf Act of 16 April 1970 was passed within two years of the accession of Mauritius to independence.

As regards the official position of Mauritius concerning the United Nations Convention on the Law of the Sea, in particular on Part XII of the Convention, it may be understood that the Government of Mauritius would favour an early application of the Convention. As regards Part XII it wishes to be made aware of all the modalities before taking a position theron.

NATIONAL ASPECTS

Given the size of Mauritius and its stage of development in the legislative field in respect of laws related to the "Protection and Development of the Marine Environment" it has not always been practicable to adhere strictly to the outline proposed, which has been followed as closely as possible.

The Ports Act of 1 July 1976 provides that the objectives of the Mauritius Marine Authority, which was established by section 3 of the Act are, inter alia, to take, in ports and in the territorial sea of Mauritius adjacent to a port, such action as it thinks fit for the regulating of fishing and navigation, and for dredging and removing wrecks and any other obstruction, and pollution.

The action is to be taken in ports and in the territorial sea. Ports are defined in section 2 of the Act and are limited as prescribed by the Scedule to the Act to include Port-Louis Harbour in Mauritius and Port Mathurin Harbour in Rodrigues. The territorial sea is defined in the Territorial Sea Act of 16 April 1970. Basically, its inner limit is the base line or the line of low water mark along the coast and its outer limit a line seawards, every point of which is 12 nautical miles distant from the nearest point in the base line.

It would therefore appear that the responsibility of the Mauritius Marine Authority to remove pollution extends far beyond the 'ports' as defined in section 2 of, and the Schedule to the Ports Act, but also includes the waters within the ring of 12 nautical miles immediately surrounding the coastline of Mauritius.

Section 43 of the Ports Act empowers the Board of the Mauritius Marine Authority to make regulations as it thinks fit for the purposes of the Act. The regulations have not yet been published. For the time being it is necessary to refer to the Regulations which have some connection with the preservation of the marine environment at sea and in the ports and which are to be found in the Shipping and Harbour Regulations, Government Notice No. 28 of 1939, chapter VIII, which deals with the loading, discharging and handling of dangerous goods within the limits of the harbour of Port-Louis. For the purposes of this chapter dangerous goods means aqua fortis, vitriol, naphtha, benzine, gunpowder, lucifer matches, nitroglycerine, petroleum, any explosive, inflammable liquids of every description, any liquid gas made or derived from petroleum and any other goods which are of a dangerous nature or liable to become dangerous when combined with other substances.

This topic can be continued by adding thereto a part of the Public Health Act of 31 December 1925 Part II, 'Sanitation', which in its section 34 specifically extends to any ship or vessel lying in any river, harbour, creek or other inland waters of Mauritius, the jurisdiction of the Sanitary Authority in the same manner as if they were a house.

The exploration and exploitation of marine resources is mainly contained in the Mauritian Fisheries Act of 24 May 1980. This Act first provides that several acts cannot be performed under this law without a licence. Applicaton for the licence is made to the Principal Assistant Secretary of the Ministry of Fisheries who may depute any person to consider the application and grant it. For example, in section 12 of the Act no person is authorized to have in his possession any net intended to be used for fishing other than a carlet net or a landing net unless he holds a licence to that effect. As regards the licensing of nets, the discretion of the Principal Assistant Secretary is restricted in that he is not at any time to license the use of more than:

(a) 33 Large nets, 33 canard nets and 20 gill nets in the Island of Mauritius;

(b) 14 large nets, 14 canard nets and 10 gill nets in the island of Rodrigues;

(c) 8 large nets, 8 canard nets and 8 gill nets for Cargados Carajos Archipelago, Agalega, Tromelin and the Chagos Archipelago and any other area where Mauritius has fishing rights.

In section 4 the import and export of any live fish, any coral or shell, whether live or dead is prohibited unless the Principal Assistant Secretary's authority is obtained in writing. This authority can be granted if the fish is to be released. The fishing of any turtle or any marine mammal is prohibited without the written approval of the Principal Assistant Secretary (section 6).

Section 9 deals more specifically with the protection of fish and the environment. The fishing or the mere possesion of undersized fish is an offence, unless authorized by the Principal Assistant Secretary for scientific or reproductive purposes or with a view to stocking a barachois, i.e., a pond enclosed on the seaward side by a wire or dam fitted with one or more barred gates or grids through which the sea ebbs and flows. The section also contains a general prohibition against depositing, throwing, discharging or causing to be deposited, thrown or discharged into the waters within the fishing limits of Mauritius or into any river, lake, pond, canal or tributary, any substance likely to injure any fish.

The fishing limits are described in secton 2 of the Act as including: (i) the territorial waters; (ii) the exclusive economic zone; (iii) the continental shelf; and (iv) areas where Mauritius has traditional or historic rights, as provided in the Maritime Zones Act.

Section 12 deals with oyster farming outside a barachois. This activity is subjected to Ministerial approval and to public control. Any application must be published in the Gazette and the Minister decides on any objection raised. The law does not limit or restrict the nature of the objection, which therefore includes any grounds related to pollution both of the oysters themselves and of the locality where the farm is to be established.

The following sections of the Act specify the fishing implements that are authorized and the duties of a licensee of a net. A very strict legislative control is exercised on the trading of nets including the import, manufacture, transfer and disposal.

Sections 16 and 17 impose limitations on the use of nets at certain periods of the year, whilst the use of the gill net is forbidden at night and its use during the day is only allowed provided the fishermen do not beat the surface of the water or make any noise for the purpose of luring fish to enter the gill net.

The Act prohibits, except in very special circumstances, which it specifies, fishing with artificial light, fishing in reserved areas, fishing in a pass (that is, as described in the Act, a channel through the reefs in which the sea ebbs and flows and includes the entrance to any harbour, bay or creek), fishing with explosives, fishing with underwater fishing implements unless approved by the Principal Assistant Secretary for scientific purposes or for the purpose of capturing aquarium fishes in order to replenish stock. The import and the manufacture of underwater fishing implements in Mauritius is subjected to a licence. Fishing boats must be registered and be properly identifiable by means of a badge or mark which is clearly displayed on the boat. A boat-register is kept by the Principal Assistant Secretary.

In order to secure compliance with the Act the following powers are entrusted to the Fisheries Officer:

(a) Power to search boats and vehicles;

(b) Power of entry and search, with a warrant from the local Magistrate;

(c) Power to arrest and detain;

(d) Power to seize fish obtained as a result of suspected offences and any articles used in the commission of the offence.

The Act finally provides for an Advisory Board whose functions consist in advising the Minister on all matters of general policy relating to fisheries and to inquire and report to the Minister on such specific matters relating to fisheries as the Minister may refer to it.

Along with the Act, there are the Fisheries Regulations, recently promulgated as Government Notice No. 18 of 1983. Their object is threefold: (i) providing for fish landing stations for commercial fishermen and preventing them from landing their catch outside a range of 100 feet from the landing stations; (ii) fixing the minimum size in respect of each species of fish; and (iii) prohibiting the fishing of undersized fish and the fishing of specified species of fish which are declared to be toxic.

The Removal of Sand Act was first introduced in 1935. It coincided with the time when sand became an important aggregate building material for concrete houses to replace the old colonial houses made of wood and covered with corrugated iron sheets. Builders collected the sand where they pleased and the intervention of the legislator was required. Experience showed that the control had to be tightened and the law was repealed and replaced in 1975.

The main features of the law, which is in fact a law for the preservation of the sea-shore and the seabed, are that:

(a) No sand may be removed from places which are not specified as 'sand quarries' or sand landing places;

(b) All dealers in sand must be licensed;

(c) The sand quarries are leased to sand dealers by the Government;

(d) The transport of sand is subjected to permit. A lorry carrying sand my be stopped and the driver questioned in order to ascertain the source of the sand.

There is a great demand for sand and in order to stop its removal from the sea-shore it was first found useful to open sand quarries lying about one hundred metres inside the coastline. There, under a thin layer of earth there was sand. After a period of exploitation the quarry has to be closed as there is no automatic replenishment of the quarry. The second step was to give permission to remove sand within the lagoon at a certain distance from the sea-shore. This practice raises two problems. In the first place it requires the presence of numerous officers to supervise the operation in order to ensure that the conditions of removal are complied with. In the second place there are insufficient data and information to guide the Ministry as to whether the removal of sand in any given lagoon is still opportune or not. It seems that some lagoons are overloaded with sand. Indeed at low-tide the seabed is almost dry in places where it was not so previously. In other lagoons it is doubtful whether regular removal is wise. In the end the real problem is to ascertain whether sand may be removed from the lagoons without affecting or at least unduly affecting the immediate marine surroundings. Once this is ascertained (and it appears to require a continuing process), then the legislative problem arises as to the granting of permits in a manner that is controllable.

As far back as 1863 there existed a Rivers and Canals Ordinance (now called an Act). Sections 87 to 91 deal with water pollution. It is an offence for any person to throw or cause to be thrown or to send or allow to flow into a river or into any canal, pipe or other conduit discharging into a river or canal any scum, residue, refuse, washing or other dirty water or other liquid that may tend to pollute the water of such river or canal.

Managers of sugar-houses (sic) were bound to make the necessary arrangements and to take the necessary precautions to keep the waters of vacuum pans, 'triple effects' and boilers, whenever such waters are discharged into a river or canal, separate from the scum, etc. existing in or issuing from any sugar-house or mill under his charge.

In order to secure the enforcement of those provisions the then Department of Health (during colonial days) and now the Permanent Secretary, Ministry of Health, may apply to a Judge of the Supreme Court in Chambers for the issue of an injunction to restrain the manager or owner of a sugar estate or the directors of a company owning a sugar estate from polluting a river or canal. Provision was made for the Judge in Chambers to hear the application himself and to issue the writ. There exists a right of appeal to the Supreme Court whether the application was granted or refused. The electrification of sugar factories and their reduction by centralization have no doubt considerably reduced this cause of pollution. Over the last fifty years there is no record of any application of this nature having been made.

It is interesting to note that under the English system of laws which Mauritius inherited, it is possible to proceed by way of injunction to obtain redress of a nuisance in all cases where damages are not an adequate remedy or to prevent the nuisance from causing further damage. This procedure is available to the citizen or to any public authority responsible for the protection and development of any given place. In cases of suspected or actual pollution the procedure of injunction might prove useful, speedy and effective.

There are two separate sewage systems on the island, one for Port-Louis and the other for part of Plaines Wilhems, and there would appear to be no laws or regulations to control the laying of the systems, their operation and their maintenance. One possible explanation for this is that the two systems were built

in pre-independence days and were first entrusted to the Municipality of Port-Louis for this town, as it then was, and to the Public Works Department for Plaines Wilhems. The present Ministry of Health or the Ministry of Housing, Lands and the Environment would now presumably take care of any administrative problems that might arise.

Nature protection areas, coastal and marine parks and coastal tourism development

There is no specific legislation covering these areas. However, the Town and Country Planning Act of 30 April 1954 might be invoked to deal with problems concerning them.

The greater part of Mauritius has now been declared a planning area (the Western Coast is the only part which appears to be excepted). The consequence is that any development of land is subject to a permit granted by the local authority, that is the Municipal or District Council of the area concerned and in their decision the local authority does take into consideration the protection of the environment and any risk of pollution likely to be caused by the development. The Town and Country Planning Board exercises control over the decisions of the local authorities and it may, under section 24 of the Act, apply to the Governor General for the revocation or modification of a scheme previously approved.

This procedure may conveniently be used to safeguard the nature protection areas, the coastal and marine parks as well as to contend with any problems caused by coastal tourism development or which would hamper the promotion thereof.

Institutions and administration

At the Ministerial level the environment generally was entrusted to the Minister of Agriculture and Natural Resources. In more recent Governments responsibility for the environment was transferred to the Ministry of Housing, Lands and Environment.

It is significant that within the limited structure of the Mauritian Council of Ministers there is no room for a Minister of the Environment as such. But this is not the sole or main reason. When one looks at the various legislative texts to which reference has been made, it seems that the problem of the environment has generally been considered in relation to the topic with which the legislator was otherwise principally occupied, such as Fisheries, Ports, Health, etc. In other words, the problems are treated in a pragmatic way and there is no global or general approach. Whether such an approach is required is a matter which would need further study in the socio-economic field. This point is illustrated by a provision of the Ancient Monument Act of 16 March 1944. In the interpretation section the words 'nature reserve' are included to mean:

> "...any forest, park, garden or other open space the preservation of which is in the opinion of the Board a matter of public interest by reason of the aesthetic, geological, historical, archaeological or scientific interest attaching thereto...."

It is therefore left to the Board to decide whether any place (the sea-shore could be one of them) would come under their protection.

The Criminal Code (Supplementary) Act was amended two years ago to make it a criminal offence to obstruct or prevent the free passage of a pedestrian on the sea-shore and to give powers to the Court, where the obstruction consisted of a permanent fixture, to order the destruction thereof at the expense of the convicted person.

Assessment

A request is made for an evaluation of: (i) the degree of implementaion of laws and regulations; and (ii) the importance of the pollution control administration of the country in absolute and relative terms.

There are no apparent signs that the laws and regulations are inadequate to meet the circumstances or that their implementation is lacking in effect. However, one should not ignore the fact that this country is likely to experience an increase in industrialization and that it has to face a serious demographic problem. The conjuction of those two phenomena may lead the authorities to watch for the need for more adequate and appropriate legislation together with the means to enforce it where necessary.

It cannot be undervalued that if Mauritius has not felt the necessity for more comprehensive and elaborate legislation to guard its shores and seas from various forms of possible pollution this has been due to the good relations and the dialogue which has existed between the authorities and the public.

Mauritius is at present in great financial difficulties and there are real risks that potential pollution problems could not be met speedily and adequately due to lack of funds. As far as the human resources are concerned, given the proper training, they exist to meet the requirements.

In any event the envisaged plan of mutual co-operation would be beneficial to Mauritius as it would allow a sharing of experience and responsibility in the problems raised by the protection and development of the marine environment.

CONCLUSION

By way of conclusion, it appears relevant to indicate that the environmental management legislation and administration have probably answered the needs of Mauritius in the past and in the present. The legislation, as is indicative in the case of the Fisheries Act, has always followed whenever there was a need for protection or for development. On the other hand if we consider the Ports Regulations we find a situation which is constantly evolving and a determination to establish the regulations which would be required not only today but in the years to come. A further look at sewage leads one to think that the administrative arrangements which have existed over the past half century would allow the scheme to continue to operate without the need for formal legislation to protect the environment from the possible risks of pollution arising therefrom.

This is perhaps taking an over-optimistic view of the situation. However, the mere writing of legislation in the Statute book does not produce miracles. What is required is the instrument and the organization to make the law effective. The view has often been expressed that the Fisheries Laws could not be enforced because the manpower and the equipment were inadequate.

LIST OF LAWS AND REGULATIONS REFERRED TO IN THE REPORT

The Ports Act, Sections 2 and 43

The Maritime Zone Act

The Continental Shelf Act

The Shipping and Harbour Regulations

The Public Health Act - Part II

The Fisheries Act

The Fisheries Regulations

The Removal of Sand Act

The Rivers and Canals Act (Sections 87 to 91)

The Town and Country Planning Act

The Ancient Monument Act

The Criminal Code (Supplementary) Act

The texts of these laws and regulations were appended to the study but limitations of space have precluded their reproduction here.

SEYCHELLES NATIONAL REPORT : by B. Georges

INTRODUCTION

Objective

The objective of this report is to survey and analyse treaty obligations and legislation in Seychelles relevant to the protection and management of the marine and coastal environment of the Republic. The report will briefly examine the main marine environment problems of Seychelles, consider steps taken by Seychelles toward the abatement and control thereof through international means and national legislation, and draw a small conclusion summarizing the steps taken so far.

Geography and situation

The Republic of Seychelles, 444 sq km of land with a total coastline of about 600 km dispersed over one million sq km of the Western Indian Ocean between 4° and 5° south of the equator with its largest land area only 14 480 ha in extent and its two furthest points 1 000 km apart cannot escape from being a maritime nation, a nation where the sea is sovereign. Indeed until a little over a decade ago at least one thousand five hundred kilometres of ocean had to be crossed by ship to obtain access to the main group of islands.

The islands of the Seychelles are easily divisible into two groups - granitic and coralline. Of a total of about a hundred islands, 43 islands, grouped together around the biggest, Mahé, are of the granitic category, the remainder being of the coralline variety and dispersed over the rest of the territory. The obvious distinction between the two groups is that while the coral islands barely rise over six metres above sea-level, the granitic islands are high-profile rising in an "A" shape out of the sea with little coastal flatland, to a maximum height of just under 1 kilometre on Mahé island.

Distribution of population and development

The small size of the coral islands of the group and the relative inaccessibility of the steep mountain slopes of the granitic ones means a population living, in the main, a few hundred yards from the sea and, at any rate, never further than three kilometres from the ocean. In the main the coral islands, because of their inaccessibility in the past and their lack of any form of social infrastructure, are sparsely populated, and generally by itinerant agricultural workers. The granitic islands, on the other hand, with better soil and proximity to the island of Mahé are better developed and carry the largest population with Mahé (the largest) having a population of 45 000, Praslin (the second largest) a population of 15 000, Silhouette (third largest), a few hundred and, La Digue (fourth largest) about one thousand.

Most major development is concentrated on the island of Mahé and practically all development on that island is concentrated on the east coast, leaving the north and west coasts with tourist developments and the west and south coasts developed agriculturally. As well as having the concentration of industries, the east coast of Mahé island also carries the bulk of that island's population, its only city, the capital, Victoria, with its port and the international airport. The main rivers of the island also flow into the sea on that coast.

It is true of all the four largest islands that roads follow the coast around the islands, traversing the mountains only in a few passes. The inaccessibility of the mountain terrain on these islands has meant that housing development has been of a ribbon nature concentrated along the roads and growing in density as the city is approached. The coastal roads being in most places only metres from the sea, this has meant the concentration of population along the coastal regions, more especially along the east coast. The ribbon development has meant a merger of those villages around the city into the main urbanization of the city itself on the island of Mahé, and of the principal settlement on the other main granitic islands.

Port movement

Most commodities and finished products are imported through the port of Victoria, and exports from Seychelles consist of coconut and coconut products, fish and cinnamon.

Offshore exploration

At present the only offshore exploration carried out is the prospecting for petroleum some two hundred kilometres from Mahé island on the Amirantes Bank. The prospecting consists of one floating oil drilling rig only.

Coastal navigation

Coastal navigation in Seychelles is limited to small canoe-fishing around the islands and larger-scale fishing in the territory further afield, as well as inter-island schooner traffic. International cargo ships all come to the island of Mahé and moor in the roadstead but load and unload alongside in the city of Victoria itself

Marine pollution

Pollution in Seychelles is evident mainly on the east coast of Mahé island and in river mouths, but exists also on some coral reefs. The reasons for this have been made evident above.

Sewage and effluent

Some effluent from the concentration of houses finds its way into the sea on the east coast of Mahé principally. Major hotels on the north-west coast especially, and around Mahé island generally, have been permitted to pipe their sewage offshore and, although strict control of this is kept, there are indications that, in some cases, the sewage dumped is raw. The brewery in the east coast industrial area is similarly allowed to pipe controlled spent brew effluent into the sea. Normal discharges from the loading and unloading, and presence, of cargo ships also add sewage and oil to the sea of the east coast of Mahé.

Sedimentation

The main form of pollution, however, is the sedimentation of the coastline by the flow of four main rivers to the sea, especially evident after heavy rains when the colour of the sea changes to brown. This has had the effect of silting up most of the coastline from the north-eastern tip of the island, through the town and industrial centre to the south of it, to the airport, a distance of some ten kilometres of coastline. The effect is that the coastline is one of mud and gravel from the high water mark to a distance varying from about half to one kilometre from it. Thereafter the seabed gradually clears up.

Quarrying, dredging and reclamation

The large-scale removal of coral for building purposes (building blocks and building lime) during the nineteenth and early twentieth centuries has destroyed the coral formation of the foreshore along most of this ten-kilometre coast, while more recently in 1971 and 1972 the dredging of the seabed in order to build a reclaimed airport and new port area has damaged yet more this already endangered coast.

The reclamation from the sea, by the building of a sea-wall and infilling, to obtain additional land by owners of foreshore plots over the last two or three decades, the building of the new port, airport and radio masts in the sea, the widening of the entrance to the harbour, the removal of river-borne gravel for the construction industry have all helped to ruin to some extent the east coast of Mahé.

Tourism and boating

Damage to coastal areas has also been caused by the removal of shells and coral for sale to tourists, by the anchoring of boats and the wanton disposal of litter by picknickers and householders living near the shore.

Oil

Minor damage to beaches throughout the Republic has also been caused by oil thought to have drifted from the tanker routes where it has been discharged by tankers cleaning tanks or emptying ballast. There are also known instances of local dumping by users of oil into the sea.

Outside Mahé's east coast

Little need be said of the rest of Mahé and of the other islands save that there has been little or no interference with the marine and coastal environment of the rest of the Republic on account of the low population of those areas. To the extent that there has been any interference at all, this follows the trend of the east coast of Mahé Island but on a vastly reduced scale. A review later in this report of legislation with regard to the marine environment of Seychelles will show the steps currently taken by the Government to ensure that coastal and marine pollution do not progress.

INTERNATIONAL ASPECTS OF MARINE ENVIRONMENT CONTROL

Introduction

The Republic of Seychelles is politically a new State, having obtained its independence from the United Kingdom, of which it was a colony, on 29 June 1976. This has proved to have much bearing on Seychelles' position in respect of international treaties and conventions with regard to, inter alia, the marine environment.

Prior to its independence, Seychelles did not have the right of signing or acceding to international obligations. Rather, these were all done by the United Kingdom and, as and when it became expedient so to do, the United Kingdom, through a memorandum to the relevant authorities, would extend the instrument to include Seychelles. In this manner, Seychelles indirectly became a party to certain international instruments.

Wishing this to continue after Independence, the new Government of Seychelles and the British High Commissioner to the new State on 29 June 1976, through an exchange of notes, agreed that:

> "...(i) all obligations and responsibilities of the Government of the United Kingdom of Great Britain and Northern Ireland which arise from any valid international instrument shall, as from 29th June 1976, be assumed by the Government of Seychelles in so far as such instruments may be held to have application to Seychelles;
>
> (ii) the rights and benefits heretofore enjoyed by the Government of the United Kingdom and Northern Ireland in virtue of the application of any such international instrument to Seychelles shall as from the 29th June 1976 be enjoyed by the Government of Seychelles...." (Treaty Succession - Devolution Agreement)

This arrangement, following representations by some States that Seychelles could not avail itself of the obligations, responsibilities, rights and benefits conferred by treaties which it had not signed but which it had only inherited by virtue of the Devolution Agreement, has now been questioned. In effect Seychelles has reviewed its position and considers itself bound by Article 8 of the Vienna Convention on Succession of States in Respect of Treaties (to which convention it will shortly be acceding in its own right). The Minister of Foreign Affairs in 1979 therefore advised the Government of the United Kingdom that it not longer considered itself bound by the Devolution Agreement, 1976.

Internally, the Seychelles Government has decided to review all international instruments which it "inherited" by virtue of the Devolution Agreement and decide to which to accede as a Sovereign State. This exercise has still not been completed. Until it is, Seychelles only considers itself bound by those international instruments which it has signed or to which it has acceded in its own right and not by those inherited from the colonial power, as the following review shows.

Specific instruments

1. International Convention for the Prevention of Pollution of the Seas by Oil, London, 1954, as amended in 1962 and 1969; 327 UNTS 3, 600 UNTS 332, 9 ILM;

   - Seychelles has not signed and is not a party to this convention;

2. 1971 Amendments to the 1954 International Convention for the Prevention of Pollution of the Sea by Oil; 11 ILM 267, FUST 971:77;

   - Seychelles has not signed and is not a party hereto;

3. International Convention for the Prevention of Pollution from Ships, London, 1973 (MARPOL); 12 ILM 131, FUST 973:84;

   - Seychelles has not signed and is not a party to this convention;

4. Protocol Relating to International Convention for the Prevention of Pollution from Ships, London, 1978; FUST 978:13;

   - Seychelles has not signed and is not a party to this convention;

5. International Regulations for Preventing Collisions at Sea, London, 1960; IMCO Publ. 1960;

   - Seychelles has not signed and is not a party hereto;

6. 1972 Amendments to the 1960 International Regulations for Preventing Collisions at Sea; IMCO Publ. 1973/1;

   - Seychelles has not signed and is not a party hereto;

7. International Convention for the Safety of Life at Sea, London, 1974; 14 ILM 963, FUST 974:81;

   - Seychelles is a member of this convention, its provisions having been accepted by the President of Seychelles on 1 October 1976. The convention has bound Seychelles since 1 January, 1977. No follow-up provisions have since been legislated by Seychelles;

8. International Protocol Relating to the International Convention for the Safety of Life at Sea, London, 1978; FUST 978:14;

   - Seychelles has not signed and is not a party hereto;

9. International Convention Relating to the Intervention on the High Seas in Cases of Oil Pollution Casualties, Brussels, 1969; 9 ILM 25, FUST 969.89;

   - Seychelles has not signed and is not a party to this convention;

10. Protocol Relating to Intervention on the High Seas in Cases of Marine Pollution by Substances Other than Oil, London, 1973; 12 ILM 605, FUST 973:83;

    - Seychelles has not signed and is not a party to this protocol;

11. International Convention on Civil Liability for Oil Pollution Damage, Brussels, 1969; 9 ILM 45, FUST 969:88;

    - Seychelles has not signed this convention and is not a party to it. Seychelles, however, by virtue of S.I. No. 118 of 1975, which came into operation on 1 April 1976, adopted the UK Merchant Shipping (Oil Pollution) (Seychelles) Order 1975, made pursuant to the UK Merchant Shipping Act. This had the purpose of enabling effect to be given to the Brussels Convention by Seychelles;

12. International Convention on the Establishment of an International Fund for Compensation of Oil Pollution Damage, Brussels, 1971; 11 ILM 284, FUST 971:94;

    - Seychelles has not signed and is not a party to this convention;

13. International Convention on the Liability of Operations of Nuclear Ships, Brussels, 1962; 14 DMF, FUST 962:40;

    - Seychelles has not signed and is not a party to this convention;

14. Convention Relating to the Civil Liability in the Field of Maritime Carriage of Nuclear Materials, Brussels, 1971; 11 ILM 277, FUST 971: 94;

    - Seychelles has not signed and is not a party to this convention;

15. international Convention Relating to the Limitation of the Liability of Owners of Sea-going Ships, Brussels, 1959; 9 DMF 721, FUST 957:76;

    - Seychelles has not signed and is not a party to this convention;

16. Protocol amending the International Convention Relating to the Limitation of the Liability of Owners of Sea-going Ships, Brussels, 1979; FUST 979:96;

    - Seychelles has not signed and is not a party to this amending protocol;

17. Convention on Limitation of Liability for Maritime Claims, London, 1976; 29 DMF 205, FUST 976:85;

    - Seychelles has not signed and is not a party to this convention;

18. Convention on the High Seas, Geneva, 1958; 450 UNTS 82;

    - Seychelles has not signed and is not a party to this convention;

19. Convention on the Continental Shelf, Geneva, 1958; 499 UNTS 311;

    - Seychelles has not signed and is not a party hereto;

20. Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters, London, 1972; FUST 972:96, 11 ILM 1292;

    - Seychelles has not signed and is not a party to this convention. However, Seychelles by virtue of S.I. No. 36 of 1976 adopted the United Kingdom Dumping at Sea Act, 1974 (Overseas Territories) Order, 1975 which now forms part of the laws of Seychelles. The Order provides that no person shall, inter alia, dump substances in the territorial waters of Seychelles or load materials for so dumping unless granted a licence. The Order is made under the provisions of the UK Dumping at Sea Act, 1974, in turn made pursuant to the 1972 Convention;

21. Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water, Moscow, 1963; 480 UNTS 43;

    - Seychelles has not signed and is not a party to this treaty;

22. Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil thereof, Washington/London/Moscow, 1971; FUST 971:12, 10 ILM 146;

    - Seychelles has not signed and is not a party to this treaty;

23. Convention on the Prohibition of Military or any Other Hostile Use of Environmental Modification Techniques, Geneva, 1977; 16 ILM 88, FUST 977:37;

    - Seychelles has not signed and is not a party to this convention;

24. African Convention on the Conservation of Nature and Natural Resources, Algiers, 1968; FUST 968:68;

    - Seychelles on 3 March 1978 acceded to this convention as a Member State. No legislation has since been enacted specifically by Seychelles arising out of its accession to this convention, but the general body of conservation legislation of Seychelles, which will be reviewed in the next part, is not incompatible with the provisions of this convention;

25. Convention on the Conservation of Migratory Species of Wild Animals, Bonn, 1979; FUST 979:55;

    - Seychelles has not signed and is not a party to this convention;

26. Convention on International Trade in Endangered Species of Wild Fauna and Flora, Washington, 1973; FUST 973:18;

    - Seychelles acceded to this convention without reservation by virtue of a note signed by the President on 26 January 1977. The convention binds Seychelles with effect from 9 May 1977. No specific legislation relating to this convention has since been enacted by Seychelles;

27. United Nations Convention on the Law of the Sea, Kingston, 1982;

    - This convention was signed by Seychelles in December 1982 at Kingston, Jamaica without reservations;

      It is to be noted that although since the signing of this convention no legislation has been passed in Seychelles as regards the territorial aspects of the convention, the Maritime Zones Act, 1977 (Act. No. 15) had established Seychelles' position. Save for its position with regard to the designation of Historic Waters (which have not been designated) this Act conforms with the provisions of the Law of the Sea Convention, 1982;

      The Maritime Zones Act came into force on 1 August 1977, its main effects being to extend sovereignty of Seychelles to a distance of 12 nautical miles from the base-line, to delimit the continental shelf as extending to the outer edge of the continental margin or to a distance of 200 nautical miles from the base-line, whichever is the greater, and to introduce for the first time the concept of an Exclusive Economic Zone (EEZ) to Seychelles and delimit that to extend to 200 nautical miles from the base-line. This last provision had the effect of increasing Seychelles' area of jurisdiction to cover an area of about one million square kilometres;

28. Charter of the Organization of African Unity , Addis Ababa, 1963; 479 UNTS 39;

- Seychelles is a full member of the Organization of African Unity (OAU), having signed the charter shortly after acceding to independence in June 1976. Prior to independence, Seychelles had been admitted to OAU meetings as an Observer. No legislation has since been enacted by Seychelles relative to the OAU.

It is not known when Seychelles will be able to completely review its position with regard to international instruments. The lack of suitable manpower in the government service in general and in the Ministry of External Relations in particular dictates that a review of treaty and international obligations is accorded low priority for the present. That there is, however, a genuine desire to complete the process started by the rejection of the Devolution Agreement is not in doubt. For the time being therefore each ministry has been asked to study those instruments of concern to it and to make proposals to the Ministry of External Relations as to which instruments to accede to. Until the process is completed the position will remain as at present with, in the main, most instruments in relation to the environment unratified,

United Nations Convention on the Law of the Sea

The Republic of Seychelles signed this convention late last year without reservations. As has been mentioned earlier, specific legislation with regard to the territorial sea, continental shelf and the EEZ had been passed in Seychelles since 1977. The provisions of the Maritime Zones Act, 1977 fortunately do not conflict with those of the convention. Additionally, as will be seen in the next part, other legislative and administrative provisions adopted by Seychelles prior to the signing of the convention, particularly in the field of conservation of the environment are not incompatible with the convention. Section 5 of Part XII for instance is well covered already by national legislation.

Seychelles, therefore, being a maritime nation living traditionally from the sea, the provisions of the convention especially with regard to the territoriality of the Republic and its conservation, were largely in accordance with the wishes of the Republic.

Politically, the only provisions of the convention which were less acceptable were those relative to section 3 of Part II in connection with innocent passage of warships through the territorial sea of the Republic. This it was felt, was not compatible with the declared and repeated intentions of the Government that the Indian Ocean should be turned into a "Zone of Peace" and consequently demilitarized. Issue was, however, not taken on that point at the signing of the convention. It is worth noting also that the Maritime Zones Act, 1977 provides, in that respect in section 4(2) that "Foreign warships, including submarines may enter or pass through territorial waters after giving notice to the President's Office."

Other government agreements

Fishing

It is the stated policy of the Government of Seychelles to expand and diversify its industries to place more emphasis on agriculture. As regards marine affairs, this policy has taken the form of a greatly increased interest in the fishing industry. To that end Government has entered into several agreements with other

countries to enable studies to be made not only of fish stocks and availability but also of methods of fishing and attendant matters.

In 1979 agreements were entered into with France for a study of an alternative method of tuna fishing, known as the pole-and-line method. This has been discontinued owing to poor catches.

A comprehensive agreement in the field of fisheries was signed at Baghdad in April 1980 between Seychelles and Iraq. The Seychelles Iraqi Fishery Corporation Act, 1981, (Act 12 of 1981) was passed subsequently to give enabling effect to the Agreement. The Act sets up a body corporate, with a share capital of US$12 million, with registered office in Seychelles, to conduct fishing operations within the waters and EEZ of Seychelles and process and market the fish. It is unfortunate for Seychelles that the hostilities between Iraq and Iran have since prevented further function of the Corporation.

A similar agreement was entered into in July 1981 with two Spanish vessels, with financial assistance from the Spanish Government. This was continued until March 1982 and proved more successful than the French/Seychelles venture. Purse-seining agreements have been entered into with both Mauritian and French companies and have proved a singular success.

Regional projects are also under way in the field of fisheries. The FAO/UNDP Regional Fisheries Development and Management Project for the south-west Indian Ocean is seeking to improve capacities and fisheries policies of the individual countries of the region and has carried out several studies in this field. An EEC-financed study is seeking areas of possible investment into tuna development in the region.

Petroleum

Some years ago prospecting for petroleum was launched in Seychelles, concessions being given by the Government to various oil companies. All the concessions have now been acquired by the American Company, AMOCO which is still actively prospecting some two hundred kilometres from Mahé. AMOCO was granted a two-year licence to do so in 1982.

Indian Ocean Commission

The island states of the region (Seychelles, Comoros, Madagascar and Mauritius) have formed themselves, since 1982, into an Indian Ocean Commission with a view to increasing co-operation within the region with the accent, initially, on matters economic -- production and distribution especially. The Commission had its first meeting of experts in Seychelles in June 1983 to define its goals and it is hoped that in the future it will provide a forum for the discussion of environmental affairs.

ANALYSIS OF NATIONAL LEGISLATION RELATING TO MARINE ENVIRONMENT CONTROL

The Maritime Regime

The Constitution of Seychelles, promulgated in 1979, declares in section 2 that the area of Seychelles consists of its islands, its territorial waters and historic waters and seabed and subsoil underlying these waters, the limits of those territorial and historic waters to be declared from time to time by legislation.

It is therefore felt that an analysis of national legislation, particularly with regard to the marine environment, must be prefaced by a short review of two Acts in Seychelles which regulate the territory and areas of jurisdiction of the Republic. These are the Seas and Submerged Lands Act, 1976 (No. 27 of 1976) and the Maritime Zones Act 1977 (No. 15 of 1977).

As regards this study, the 1976 Act legislated in respect of the regimes of the territorial sea and continental shelf of the Republic, but more especially defined the "natural resources" thereof and established the sovereign rights of the territory in respect thereof.

The 1977 Act was careful in providing in section 14 thereof that it would prevail in relation to any conflict with the provisions of any other Act in force. Having so stated it went on to provide new definitions of the territorial waters and continental shelf and introduce, for the first time, the concept of an Exclusive Economic Zone (EEZ), which would extend beyond the territorial waters for a distance of 200 nautical miles from the base-line. The area was delineated in the Exclusive Economic Zone (No 2) Order, 1978 (S.I. 125 of 1978). The Act provided (S.3) that Seychelles have sovereignty over its territorial waters (12 nautical miles); full and exclusive sovereign rights over the continental shelf (S.5); and listed the rights exercisable by Seychelles within the EEZ (S.7). These are, briefly:

- Sovereign rights of exploration, exploitation, conservation and management of resources;
- Exclusive rights over the means of exploration and exploitation, and regulation of shipping;
- Exclusive jurisdiction to authorize and regulate scientific research, and to preserve the environment and prevent pollution;
- The right to grant licences to other bodies to do the above;
- The right to prescribe regulations for the better carrying out the above (S.15).

These two pieces of legislation had the effect of vastly increasing the effective territory and jurisdiction of the Republic to cover a very large area of ocean and to bring with it the very real problems of policing such a territory.

Marine pollution by discharge of oil from ships

The territory and EEZ of Seychelles straddle the main tanker routes from the Gulf to Western Europe. The Seychelles lie in an area just north of Madagascar that is very vulnerable to pollution of oil from ships. (See IMO/UNEP: Oil Pollution Control in the East African Region, UNEP Regional Seas Reports and Studies No. 10, UNEP 1982.)

Seychelles has only two pieces of legislation in point:

(a) The Merchant Shipping (Oil Pollution) (Seychelles) Order, 1975 (S.I. 118 of 1975) which came into operation on 1 April, 1976:

This is a United Kingdom piece of Subsidiary Legislation extended to Seychelles, which was then a Colony of the UK. It provides that the owner of the ship shall be civilly liable for any damage caused to the territory of Seychelles by the discharge of oil from the ship subject to certain exceptions mentioned. The Order also provides for Seychelles to contribute to and have the right to be compensated from the International Fund for Oil Pollution Damage. The Order was passed pursuant to the signing, by the UK, of the 1969 Brussels Convention on Civil Liability for Oil Pollution Damage. Seychelles, as has been mentioned earlier, is not a party to the convention. The writer is thus of the opinion that, in so far as it does not concern Seychelles directly, the Order is inapplicable, but that it is, nevertheless, a complete piece of legislation;

(b) The Maritime Pollution Regulations, 1981 (S.I. No. 51 of 1981) made under the Maritime Zones Act, 1977:

The purpose of these regulations is to make it an offence, punishable by a maximum term of five years' imprisonment and/or a fine of SR200,000 to discharge oil from a vessel, or from land, or from a transfer from one to the other, into the territorial waters of Seychelles or outside them so that they may be indirectly polluted. The person in charge of the vessel, container or machine from which the oil escapes has a duty to report the discharge. Pollution control officers are empowered to board, seize, search and arrest suspect vessels or people as the case may be and are given the right of hot pursuit outside the territorial waters (Regs. 6 and 7). The Court may, in sentencing an offender, burden him with the costs incurred in restoring anything damaged by the discharge (Reg. 10).

Two other pieces of legislation although not directly in point here are also worth mentioning as providing possible regulation of marine pollution by discharge of oil from ships:

(a) The Dumping at Sea Act 1974 (Overseas Territories) Order 1975, another piece of UK legislation (made pursuant to the signing by the UK of the 1972 Convention on Dumping of Wastes at Sea) which was extended to Seychelles:

This Order does not deal specifically with oil, but prohibits, inter alia the dumping within the territorial waters of Seychelles of any "substance or articles". Such dumping is an offence punishable by a fine of SR5,000 or six months' imprisonment or both (S.I.). The Minister, by virtue of section 2, may grant licences to authorize the dumping, having regard to the need to protect the marine environment. Section 5 provides that enforcement officers may inspect ships in ports of Seychelles or British ships anywhere to enforce the Order;

(b) The Harbour Regulations (1933):

This antiquated legislation regulates the landing of petroleum in the harbour of Seychelles. Regulations 4 to 9 provide that:

- The petroleum-carrying ship carry a red flag or light;

- The owner of the ship notify the Harbour Master of the quantity of petroleum aboard;

- The ship be berthed at a place designated by the Harbour Master;

- The petroleum be discharged during the daytime;

- Unloading equipment be safe;

- No fire or artificial light be in the vicinity of the landing;

- No petroleum be discharged or allowed to escape into the waters of the harbour;

- The vessel be guarded at all times;

- The vessel is liable to be inspected.

The Harbour Act is badly in need of updating to provide real safeguards against spillage of oil and wastes into the roadstead and to provide, for instance, reception facilities on shore for wastes from ships. This should stop the habit of ships, mentioned elsewhere, of flushing their tanks once outside the harbour and safely out of sight.

The legislation passed in Seychelles was so passed in view of the very likely risk of oil pollution by discharge from ships sailing through the region and its consequent effects on the tourism industry and marine life of Seychelles. It is felt that existing legislation covers the necessary ills, but it should be enlarged to provide control over pollution as will be discussed in the conclusion hereto.

Marine pollution by the exploration and exploitation of marine resources

Living resources

In keeping with its good record of conservation, Seychelles has implemented much legislation to safeguard its sea life from over-exploitation if not from all dangers of pollution. Legislation has also been implemented to control the fish-stocks of the territory. Legislation generally follows two patterns -- the protection of resources by the creation of protected areas and protection by the control of exploitation. The former category of legislation will be considered under a separate head later and only the latter need be considered here.

Fish

The Fisheries Act, Cap. 134, passed on 17 January 1942, controls fishing in Seychelles. Fishing in Seychelles is carried out by netting, trapping or by line. Traditionally, fishing has been carried out close to the shore, but modern methods of offshore commercial fishing are now carried out by larger companies and the parastatal company Fisheries Development Company (FIDECO).

The Fisheries Act provides for the existence of a Fisheries Board to implement the Act. All net fishing must be licensed (S.5) and no net fishing is permissible in fishing reserves (S.7) which can be designated by the Minister (S.6). The Act also prescribes the size of traps (S.8), the protection of female lobsters with eggs (S.13), the minimum size of fish which can be caught (S.14), the authorization to

lay oyster beds (S.15), the registration of fishing boats (S.19) and the appointment of Fishery Wardens (S.26). Fishing boats and houses may be searched for illegal fishing tackle (SS.20,21). Offences in contravention of the Act are dealt with by a fine not exceeding SR500 and imprisonment not exceeding three months, and also forfeiture of catch and tackle (S.27).

Additionally, the Minister is empowered to make regulations, inter alia, fixing closed seasons for the protection of fish (S. 29(d)) (none have been) and for the prohibition of spear-guns (S.29(e)).

Regulations made in 1962 under the Fisheries Act (section 6) designated certain areas of the islands of Mahé, Praslin and La Digue as fishing reserves. These reserves were restricted in 1977 to the east coast of Mahé, including islands, the south-east coast of Praslin, and the west coast of La Digue. In Mahé they roughly coincide with St. Anne and Baie Ternay Marine National Parks.

Regulations made in 1929, inter alia, prohibit the use of any oil as bait.

The Fisheries (Spear-guns) Regulations, 1972, effectively banned the use of spear-guns as a method of fishing by prohibiting the sale of such and making it an offence to possess a spear-gun in circumstances raising a presumption that it had recently been used or was about to be used for fishing. The penalty for non-compliance is similar to that under the Fisheries Act (see above).

If the Fisheries Act was meant primarily for the internal control of fishing in an island State in the early 1940s, then the Fisheries (Control) Act, 1976 (No. 32 of 1976) was designed to cope with the emergence of fishing companies intent on fishing further afield and fishing mainly for export.

The Act provides for the proclamation of the Seychelles' Territorial Sea as "proclaimed waters" and the licensing of any fishing therein (S.5). No proclamation has, in fact, been made but vessels fishing in the territorial sea must still be licensed. Fishing without a licence, or contrary to a condition thereof, is an offence punishable by a fine of SR20,000 (SR50,000 if a company) or imprisonment for two years (S.4). Additionally, section 7 provides for the forfeiture of vessel, equipment and catch on board and proceeds of sale of catch.

The rapid growth of fishing in the territorial waters and EEZ by foreign ships, notably from Japan and South Korea, in competition with local companies, compelled the President, then governing without Parliament, to issue the Control of Foreign Fishing Vessels Decree, 1979, (Decree No. 5 of 1979).

A foreign fishing vessel must be licensed to be able to fish within the EEZ. Such licences can prescribe areas and periods of fishing as well as species which can be fished and methods of fishing. They are issued upon payment of a fee and can be suspended or cancelled by the Minister.

Authorized officers under the Decree have power to stop and search fishing vessels within the EEZ and, on reasonable belief that an offence has been committed, power of seizure of vessel and arrest of persons and power of hot pursuit outside the EEZ. The penalty for fishing without licence carries a maximum penalty of a SR750,000 fine on the owner and master severally. Additionally, the catch (or proceeds of its sale), vessel and equipment are liable to forfeiture, and the costs incurred in holding the vessel are claimable.

These last two Acts provide these severe sanctions, no doubt because of the vulnerability of the territory to large-scale fishing, especially at a time when Seychelles is also taking an active role in commercial fishing. Only one prosecution, fortunately, has so far been brought under the Decree.

The licensing of foreign vessels under the Decree provides not only a measure of control of fish stocks, but, to a developing country, a welcome and substantial source of revenue. Needless to say the line between conservation and commercialization is a very fine one. Methods of effective control of foreign fishing vessels will be discussed later.

Turtles

The over-exploitation of turtles, for long a cheap source of meat to the population of Seychelles, for whom the meat is also a delicacy, and the source of tortoise-shell for tourist-craft, is kept in check by the Turtles Act of 1925, Cap. 141.

The Act makes it an offence to catch undersized hawksbill or green turtles (S.3) and to catch female turtles about to lay (S.6). All catches have to be declared to Customs or Police officials (S.9). Close seasons can be and are prescribed (S.12). Offences carry a penalty of a fine of SR1,000 or one years' imprisonment (S.17).

Further protection was accorded by the gazetting of the Green Turtles Protection Regulations, 1976 (S.I. 43 of 1976) which prohibits all killing of female turtles, and that of males during the close season, and the sale in hotels and restaurants of turtle meat. The Regulations were amended in 1977 (S.I. 55 of 1977) to make it unlawful to posseas or sell more than two kilograms of turtle meat or to slaughter or sell meat without authority or a butcher's licence. Further protection was afforded by the Turtles (Protection) Regulations, 1979 (S.I. 115 of 1979). Protection of the hawksbill turtle, hunted for its shell, is afforded by the same regulation. The taking of this turtle is prohibited in certain areas (which coincide in the main with areas designated as marine reserves), and the Minister's authorization is required for the purchase, sale or export of the turtle.

Mammals

Whales were protected in Seychelles under the Whale and Other Fishery Act 1926, Cap. 142, by the requirement that licences had to be issued to allow their capture. This Act has, however, been rendered obsolete by the Marine Mammals Sanctuary Decree 1979 (No. 28 of 1979) which established a Marine Mammals Sanctuary over the territorial waters and EEZ of Seychelles within which it is unlawful to kill, chase, harass or take any whale, dolphin, porpoise or dugong. Any breach of the provisions of the Act carries a maximum penalty of a SR200,000 fine and imprisonment for five years, as well as forfeiture of any equipment or boat used in the commission of the breach.

This Decree was passed at a time when Seychelles, through its active membership of the International Whaling Commission (IWC), was taking the lead within the IWC to phase out worldwide commercial whaling so as to protect that endangered mammal. As a result of the Decree, and its active role within the IWC, Seychelles has subsequently emerged as the front-runner in the realm of whale protection and has also, acting as mediator between those who would and those who would not ban whale-hunting, succeeded in keeping the spirit of conservation alive within the IWC on occasions when IWC proposals were threatened by the non-agreement of whaling nations.

Shells

The exploitation of shells to feed a large tourist industry was the reason behind the promulgation in 1981 of the Conservation of Marine Shells Act (No. 4 of 1981). Except for some shells exempted in Schedule 3 (traditionally used for food or bait) the removal of shells from preserved areas (of which several have been designated within, and also outside, marine parks) or their disturbance therein are banned, as is the collection from anywhere of a protected shell. It is also an offence to sell an unworked shell (S.5) or to export over two kilograms of shells without a licence. Offences against the Act carry a penalty of up to six months' imprisonment and/or a fine of up to SR5,000.

Mineral resources

The only mineral resources in Seychelles which have been the subject of legislation are, in effect, petroleum, sand and gravel, although the Minerals Act is wider in scope.

Petroleum

The Minerals Act, 1962 (Cap. 157) permits prospecting for a variety of minerals, excluding petroleum, on land and on the continental shelf, under licence, and mining under a right or lease (S.6). This Act is largely redundant, there existing no minerals in Seychelles of the type of those within the scope of the Act.

Petroleum mining itself is, however, specifically governed by two 1976 Acts, one dealing with the administration of petroleum mining and the other dealing with liability for pollution resulting therefrom.

The Petroleum Mining Act, 1976 (No. 3 of 1976) vests all petroleum deposits on land and on the continental shelf in the Republic (S.3). Section 4 provides that exploration and exploitation of petroleum can only be carried out under licence and imposes a fine of SR2,000 for each day an offence continues. Additionally, the petroleum and equipment shall be forfeited.

The Minister responsible may, by virtue of S.16 make regulations providing, inter alia, for the protection of the environment and the taking of measures to avoid pollution.

Two sets of Regulations have in fact been made. The Petroleum Drilling Regulations 1980 (S.I. 35 of 1980) provide the technical control of drilling and drilling rigs and specifically provide that waste collectors be available at all parts of the rig susceptible to leakage or spillage (Reg. 14); that disposal of waste into the sea be restricted and in any event that the waste be harmless to human or marine life (Reg. 49); and that the concessionaire at all times maintain an effective system for combating oil pollution (Reg. 80).

The Offshore Installations (Emergency Procedures) Regulations 1980 (S.I. 36 of 1980) proivide that mobile and established rigs be supplied with manuals detailing action to be taken in cases of emergency and include in particular the case of "...a leak of spillage of any oil...." (Reg. 4 (1)(c)).

The Petroleum Mining (Pollution Control) Act, 1976 (No. 18 of 1976) is self-explanatory and serves to further control oil pollution from rigs by providing "after the event" sanction. This basically provides that the licensee is responsible civilly for damage caused to Seychelles, and the cost of putting such

right, as a result of the discharge of petroleum during mining therefor (S.4). The licensee is obliged by section 10 to take compulsory insurance against liability for pollution damage. Penalty for non-compliance is a maximum fine of SR200,000 or a maximum of two years' imprisonment.

Sand and gravel

Thankfully for the environment, the old method of building in Seychelles using coral blocks from the reefs, and using burnt coral as building lime has been discontinued and is no longer a threat to reefs.

The indiscriminate removal of sand from beaches and gravel from river mouths for the construction industry had led in some cases to ugly sores on the beaches and coastline of Seychelles. This is now controlled by the Removal of Sand and Gravel Act, 1982 (No. 13 of 1982) which repealed the old Control of Removal of Sand and Gravel Act.

The 1982 Act makes it an offence punishable by a maximum of six months' imprisonment and a SR10,000 fine for the removal of sand and gravel without an abstraction licence. This licence will be subject to whatever conditions are deemed necessary and especially can be subject to a condition regulating the quantity of sand and gravel which can be removed (S.5). The Act extends to the public domain and thus includes, by virtue of section 538 of the Civil Code, "...the foreshore and banks, beaches which have been gained from the sea...ports, harbours and anchorages...."

Onshore uses of sea-water

The abundance of fresh water in Seychelles and the relative mediocrity of its industrial sector means that, save for an uncompleted salt reclamation project on Desroches Island, sea-water is not used on shore. There is thus no legislation dealing with this topic and none is really required.

Coastal tourism development and marine pollution from land-based sources

Legislation relative to the protection of the sea from land-based sources and from coastal development is restricted to that concerned with physical planning, public health and harbours, but indirect control is also exercised by legislation relating to agriculture and water and will be considered.

Planning

The Town and Country Planning Act of 1972 (Cap. 160) is the Act which regulates the control of development of land. This is done pursuant to a general Development Plan which earmarks areas of development and restricts development in particular areas to particular types (for example, tourism, industry or agriculture). Individual development can then only be carried out by application to the Town and Country Planning Authority (established pursuant to section 3 of the Act) for planning permission to develop. This is then either granted outright, or on conditions imposed by the Authority, or refused. In that way, therefore, control of the environment is exercised.

The development in the context of the environment is, in Seychelles, one of the prime considerations for the granting or rejection of development permission. This is not legislated, but is made the subject of administrative guide-lines, some examples of which are given below. This works satisfactorily for the present, but the proper setting for such guide-lines should perhaps be in Regulations made pursuant to the enabling Act. This would not only assist the prospective developer, but would also situate development control within the ambit of environment control. In particular, Regulations should be made specifying those conditions imposed on the size, number height and position of buildings on the coastal strip and specifying the content of effluent discharged in the sea and places of discharge.

With regard to coastal tourism development, this is limited by the development plan in the first instance (for example, the number and size of hotels on a particular coast). The Authority, in determining planning application for permission to develop, is guided by guide-lines it has set itself. As regards building, no permission will be given to build on a coastal strip less than 100 feet wide and the building will have to be not less than 40 feet from the high-water mark. With the exception of the town centre, no permission will be granted for a building development, the height of which will exceed the height of the surrounding vegetation. With regard to effluent being discharged into the sea from hotels and factories, the method of filtration and content of effluent (determined by World Health Organization Standards) are again subject to the conditions imposed in the grant of planning permission.

Control of development is exercised by enforcement action under section 14 of the Act. If any development is carried out without permission or not in accordance with the conditions of permission, an enforcement notice can be served on the developer forcing him to comply with the requirements of the notice. Failure to comply with an enforcement notice is an offence punishable by a fine not exceeding SR4,000 and imprisonment not exceeding six months.

Owners of land bordering the high-water mark can apply under the Land Reclamation Act, 1961 (Cap. 152) to reclaim from the sea that part of the foreshore adjoining their property. Under section 2 applications are addressed to the Town and Country Planning Authority. In the past, the fill of reclaimed areas was not regulated, with the result that organic matter used would permeate the reclamation walls and pollute the sea. The type of fill is now specified by the Planning Authority, in granting permission to reclaim, in a bid to control this type of pollution.

Public health

Regulations made under the Public Health Act, 1960 (Cap. 194) are designed to control nuisance and pollution. The Washing Limits Regulations designate those parts of rivers and streams within which the people can wash their linen. (This is a traditional method of washing clothes in Seychelles.) The North Mahé (Pollution of Beaches) Regulations, 1950, prohibits the gutting of fish and the throwing of refuse on Mahé's most frequented beach. The Health and Sanitation (Prevention of Defilement of Rivers and Streams) Regulations, 1970 prohibits, upon pain of a fine of SR1,000 the erection of a house, kitchen, latrine, stable, pig-sty, etc. within 50 feet of a river or stream unless authorized.

Harbours

The Harbour Act and Regulations made thereunder, already mentioned above, provide, by Regulations 17 and 18, that no rubbish and ballast shall be thrown in

the harbour and by Regulation 41 that ballast shall only be deposited in places designated by the harbour master.

Agriculture and water

In so far as the product of activities on land can, through the drainage of rivers, reach the sea and there affect the environment, legislation dealing with these activities and with rivers have a bearing on the protection of the marine environment. This aspect has been touched upon under the heading Public health, above, but needs elaboration.

The Agriculture Act of 1906 (Cap. 121) is a masterpiece of brevity. Section 3 empowers the Director of Agriculture, now Minister, to issue a land preservation order to the owner or occupier of land to perform or prohibit acts generally relative to the conservation of land by the prevention of defoliation so as to obviate, inter alia, erosion. These orders have been issued especially in relation to the island of Praslin which has been much defaced in the past by bushfires and whose hillsides have been transformed into gullies. This is being countered by terracing and reafforestation.

This Act is in great need of reform to bring it up to date with an increasing population and with increasing land-use by small-scale farmers. In particular, land preservation orders should be replaced by more comprehensive regulations to provide areas designated for agriculture (at present designated under the Development Plan) and the management of such areas by owners and occupiers with the accent on the preservation of the environment, as over-exploitation could easily, in view of the steep terrain of the granitic islands, lead to wide-scale erosion of the hillsides and a consequent siltation of coastal marine areas.

The Crown Land and River Reserves Act, 1903 (Cap. 150). although old, affords some protection. Part IV of the Act protects forest reserves and rivers by prohibiting the wanton felling or burning of trees. The provisions of the Act are largely unnecessary as afforested areas of Seychelles are uninhabited and the timber therein unused.

What needs to be done to legislation on agriculture was done in respect of water in 1982. The provision of water was, until then, regulated by the Rivers and Streams Act of 1969 (Cap. 221), which dealt with extraction from rivers and streams, then the only means of obtaining water for those residents living outside the limits of Victoria; and the Water Supply Act of 1903 (Cap. 222), which coped with a relatively small population supplied from one or two public reservoirs. The latter Act made it an offence, punishable by a fine of SR500 to pollute rivers and streams in the region of water works.

The rapid urbanization of the capital and the provision of treated water to a growing sector of the population of Mahé, as well as that of the main islands, prompted the repeal of these two Acts and replaced them by the Water Act, 1982 (No. 21 of 1982). A body corporate, the Seychelles Water Authority, was set up to implement the Act by supplying water and disposing of sewage. Part V of the Act deals with the pollution of rivers and reservoirs. The Authority is to use its best endeavours to prevent pollution and to regulate and control its occurrence (S.51). It is an offence, punishable by a fine of up to SR10,000 (SR20,000 if a corporation) to cause any pollution of rivers and reservoirs(S.53). There are exceptions to this and, interestingly, these include pollution attributable to an act in accordance with "good agricultural practice" (S.53 (2)(c)).

The National Research and Development Council created by the National Research and Development Act, 1980 (Act No. 20 of 1980) is a division of the Ministry of National Development and at the moment works on developing alternative and renewable energy projects funded, in the main, from outside sources. It will be transformed in the near future, through UNEP intervention, into a laboratory for the monitoring and control, on a regional basis, of all aspects of pollution. This will mean regional consensus on such things as quality of beaches and water quality.

There exists in Seychelles an EEZ Control Unit which is a division of the Air Wing of the Ministry of Youth and Defence. The aim of the Unit, which has a maritime surveillance aircraft (a custom Britten-Norman Islander), is the daily visual surveillance of the territorial waters and occasional patrol of the EEZ to enforce the Foreign Fishing Vessels Decree, 1979, and watch for any pollution of the waters by oil or other wastes. A small pollution control unit also exists within the Seychelles Fire Department but it has meagre funds and negligible equipment.

Seychelles is blessed in matters of marine environment in that all its problems can be controlled, no problem is too far gone. Those problems with which the marine environment is faced are both in Seychelles terms and relatively speaking, minor, in comparison with other States in the region. This has much to do with a small and widely dispersed population. As is to be expected, the area of greatest urban concentration, the east coast of Mahé, is also that of the more serious damage to marine life.

In the field of conservation Seychelles has done much to protect itself as it needs to, having primarily a tourism-oriented economy. The islands have not so far suffered the ravages of a super-industrialized economy. By and large, natural resources are adequately protected and will continue to be so as long as the environment consciousness of the Government does not wane. At present there is no indication that protection will cease to be forthcoming. Protection from industrial pollution damage is also properly controlled legislatively and administratively.

There is at present sufficient awareness and manpower to control and regulate protection of the marine environment from land-based and "inshore" pollution. The Planning Authority, public health officers, marine park wardens are largely adequately trained and equipped to counter threats to the marine environment. In each case there is little cause for concern.

Where the Republic can exercise little physical control, although it has adequate legislative measures, is over that part of the territory and EEZ which lies away from the main granitic group of islands. The problem is directly one of limited financial and human resources and dependence on international sources for training of personnel and purchase of equipment.

Effective prevention of damage from pollution can only result from the detection of the problem as early as possible. Control over the territory and EEZ is at present exercised by only one Britten-Norman Islander aircraft. This flies daily patrols over the territorial sea, but the EEZ proper goes without adequate protection for long periods. The surveillance aircraft is backed by ships of the Navy donated by France and the USSR.

The accent henceforth must be not so much on the passing of legislation, but on the policing of that which exists at present by more regular and more effective surveillance of the further reaches of the Republic by aircraft and ships, and the setting up of a proper pollution unit to deal with any major threat of oil pollution.

Nature protection areas and marine parks

Of the methods of environmental control these are the most visible. Seychelles has already earned itself a name in the conservaton world and, as the repository of many unique species, it has designated several parts of its territory as special nature reserves.

The fountain of legislation in the present regard is the National Parks and Nature Conservancy Act, 1969 (Cap. 159) which was radically amended in 1982 (Act No. 19 of 1982). Formerly the Act had been administered by a National Parks and Nature Conservancy Commission, but its terms of operation were vague. A Seychelles National Environment Commission was set up by the 1982 amendment (S.3), as a body corporate in replacement of the National Parks and Nature Conservancy Commission to draw up and implement environment policy according to the IUCN objectives. The Commission is under the chairmanship of the Minister and has power to desiqnate reserves and parks. These are strict nature preserves in which any form of disturbance of the environment is prohibited on pain of a fine of SR2,000 and imprisonment for one year (S.10, 13).

Among marine parks designated are the St. Anne Park off the east coast of Mahé, the Port Launay Bay and Cap Ternay Bay parks also on Mahé, and the Curieuse Island Park off the east coast of Praslin, as well as, more recently, the island of Aldabra. Each reserve, when designated, has its own set of regulations to guide its management. The regulations of each park are similar in structure and scope and generally limit the use of boats and pleasure craft within the park, make it an offence to disturb the marine environment and to take living or dead species therefrom, or to litter or pollute the park; and limit fishing in the parks. Contraventions of the regulations carry a maximum fine of SR2,000 and/or imprisonment for three months. Fish, turtles, shells and mammals also have their own reserves protected by legislation, but have been dealt with elsewhere and need not be surveyed here.

Institutions for environmental management and pollution control

Although several institutions exist in Seychelles which deal exclusively or in part with environmental management and pollution control not all are regulated by legislation. The principal institution is the National Environment Commission, discussed above, born of the amendment in 1982 to the Nature Conservancy Act. The 1982 Amendment sets out, in a new schedule 2 to the Act, the three main objectives of Environmental Conservation as stated in the World Conservation Strategy, prepared by IUCN. These are:

(a) To maintain essential ecological processes and life support systems;

(b) To preserve genetic diversity; and

(c) To ensure the sustainable utilization of species and ecosystems.

The 1982 Amendment, in an enlarged section 3, detailed the functions of the new commission in an attempt to administer more properly these objectives of conservation of the environment. Interestingly, one of these functions is the co-operation with other States of the region in the conservation and management of the environment and living resources of the region.

CONCLUSION

Seychelles, which depends on the sea to feed its population and on the beauty of the islands and their seas to atttact tourists, the largest source of foreign earnings, must be and thankfully is, extremely conservation-minded.

In the past, unfortunately, this was not always so and as a result of excessive quarrying of coral, sand and gravel for building, parts of the coastline of Seychelles are permanently damaged. Lack of proper control of reclamations and the fills used therein, lack of proper and effective control of dumping of wastes along the coast, the stripping of reefs of shells for sale to tourists, and such necessary development projects as the reclaiming of the Victoria new port and the airport from the sea have left permanent scars on the marine environment. The east coast of Mahé provides an example of all types of marine pollution and their effects to everyone.

It is, however, fair to say that the tide has been halted and is being reversed. Such developments as the recent streamlining of the National Environment Commission and the imminent extension of the National Research and Development Council to co-ordinate control of pollution on a regional scale are promising.

The conservation of living resources within nature reserves, national marine parks and sanctuaries are steps in the right direction and, although there remain minor policing problems, these can be overcome by better training of staff and additional purchase of equipment.

The control of inshore exploitation and pollution is conducted within government departments through effective physical planning control and under the Public Health Act. Here again it is felt that the existing legislation is sound and covers those areas which would otherwise be open to abuse.

If Seychelles has been keen in recent years to protect its marine environment it seems to have had almost complete regard to ensuring that certain species or certain areas are protected, without regard being paid to the broader and more negative aspects of the problem. Thus, Seychelles is party to very few relevant international conventions, has no proper policing of its EEZ and has no effective means of dispersal and control of oil pollution. The trend seems to have been to capitalize on the easier and more tangible protection, leaving aside the less easy and less positive sectors of environmental control.

There is no legislation in the pipeline, but it is recommended that such be implemented to set up a larger pollution control unit (or several such units throughout the territory) to disperse and control pollution by oil and other waste.

Consideration should also be given to the implementation of more comprehensive and detailed legislation or planning control especially with regard to constructions on the coastal strip, delimitation of industrial sectors and content of effluent discharged at sea from hotels and industries.

Legislation dealing with land use must be completely overhauled to control the present trend toward more small-scale farming so that erosion caused by improper land-cleaning can be countered. (This is liable to be a thorny issue in view of government policy towards small-scale farming, and the high cost of terracing and other erosion-avoidance action). Better waste reception facilities at the port also need to be established.

Greater emphasis must also be given to co-operation on a regional scale and eventually on an internatonal scale. The trend already seems to be towards the former by the establishment of the Indian Ocean Commission and by the extension of the Research and Development Council.

The process of review of relevant international conventions examined in chapter II of this paper must be speeded up in the interests of effective environmental control.

Protection of the environment cannot be carried out in isolation. While effective protection is available in Seychelles of many species and designated areas and while such protection is, in the main, well enforced, the marine environment of Seychelles will always be threatened until all steps are taken, legislatively and administratively, to cover all existing possible aspects by the accession to and implementation of international conventions, by more effective policing of the territory and by more co-operation on regional and international levels.

APPENDIX

Legislation referred to in the study:

in order of mention

- The Merchant Shipping (Oil Pollution) (Seychelles) Order, 1975
- The Dumping at Sea Act 1974 (Overseas Territories) Order, 1975
- The Maritime Zones Act, 1977
- The Seychelles - Iraqi Fishery Corporation Act, 1981
- The Seas and Submerged Lands Act, 1976
- The Exclusive Economic Zone (No. 2) Order, 1978
- The Maritime Pollution Regulations, 1981
- The Harbour Regulations
- The Fisheries Act and Regulations, Cap. 134
- The Fisheries (Spear guns) Regulations, 1972
- The Fisheries (Control) Act, 1976
- The Control of Foreign Fishing Vessels Decree, 1979
- The Turtles Act, Cap. 141
- The Green Turtles Protection Regulations, 1976
- The Green Turtles Protection (Amendment) Regulations, 1977
- The Turtles Protection Regulations, 1979
- The Whale and Other Fishery Act, Cap. 142
- The Marine Mammals Sanctuary Decree, 1979
- The Conservation of Marine Shells Act, 1981
- The Minerals Act, Cap. 157
- The Petroleum Mining Act, 1976
- The Petroleum Drilling Regulations, 1980
- The Offshore Installations (Emergency Procedures) Regulations, 1980

- The Petroleum Mining (Pollution Control) Act, 1976
- The Removal of Sand and Gravel Act, 1982
- The Town and Country Planning Act, Cap. 160
- The Land Reclamation Act, Cap. 152
- The Washing Limits Regulations, Cap. 194
- The North Mahé (Pollution of Beaches) Regulations, Cap. 194
- The Health and Sanitaton (Prevention of Defilement of Rivers and Streams) Regulations, Cap. 194
- The Agriculture Act, Cap. 121
- The Crown Land and River Reserves Act, Cap. 150
- The Rivers and Streams Act, Cap. 221
- The Water Supply Act, Cap. 222
- The Water Act, 1982
- The National Parks and Nature Conservancy Act, Cap. 159
- The National Parks and Nature Conservancy (Amendment) Act, 1980
- The National Research and Development Act, 1980

SOMALIA NATIONAL REPORT : by M. I. Singh

INTRODUCTION

The Somali Democratic Rebublic is located on the outermost tip of the "Horn of Africa" and is bordered by the Gulf of Aden to the north, the Indian Ocean on the east and Kenya, Ethiopia and Djibouti on the west. It is a geographical region along the central eastern coast of Africa and stretches eastwards from Babel-Mandep, or the southern gate of the Red Sea, along the Gulf of Aden to Cape Guardafui and southwards along the Indian Ocean to Ras Kiamboni.

With a total area of 637,657 km the Republic has a coastline of 2,000 miles or 3,200 km, virtually the longest coastline in developing Africa.

The total population of Somalia is estimated at 5,158,000 (Five Year Development Plan 1982-86 published by Ministry of National Planning). The coastal population can therefore be estimated at about one million.

The major coastal cities and harbours are Mogadishu, Berbera, Kismayu, Merca, Bosaso and Brava. Laskoreh, Qandala, Hobyo, El-Ahmed, Alula, Zaila and Eil are other harbours which, though small, have their own importance due to the ongoing projects and industries based on them. A few particulars of each of the five major coastal cities are given below.

Mogadishu, the capital city of Somalia, is situated on the shores of the Indian Ocean and is the country's chief seaport. It has an estimated population of 500,000. A new deep-water port has recently been constructed.

Berbera is the seaport for the north-western part of Somalia, serving particularly the inland capital cities of two regions i.e. Hargeisa and Burao. It has an estimated population of 50,000. It is 1,300 km by air and 2,200km by sea from Mogadishu, and there are daily flights to and from the two towns. Most export of livestock from Somalia is through this port.

Kismayo is located on the east coast towards the south and it is about 400 km from Mogadishu to which it is also connected by air. It has a population of 20,000 approximately. It has a pier harbour and possesses features which can make it ideal for development as a major fishing centre.

Merca is an ancient city situated on the east coast, about 100 km south of Mogadishu. It has an estimated population of 15,000. More than a quarter of the nation's banana exports come from Merca which is very near one of the two chief banana growing areas - Shalambood.

Bosaso is one of the largest towns on the north coast after Berbera, with a population of about 5,000. Bosaso is the capital of the eastern region and has a customs-controlled port handling particularly the export of livestock to Saudi Arabia. It has a fishing community who also dry and salt the fish to be sent to Mogadishu, which is some 1,450 km by road. A weekly flight also operates between Modagishu and Bosaso.

Flow of rivers

The Republic has two permanently flowing rivers, the Juba and the Shebelle, both rising in the Somali plateau in the territory of Ogaden, now held by Ethiopia. They drain a huge catchment area and the flow for a considerable distance through vast territories of the southern regions of Somalia.

The Juba River has three tributaries, the Dawa, the Ganane and the Merca, which meet near Dolo to form the Juba. Then the river meanders to the sea near Kismayu, in the southern extremity of the country.

The Shebelle river originates north of the Juba catchment area. It is 680 km long within Somalia and has two small tributaries that join the river some sixty miles north of Imey. The Shebelle river crosses the de facto boundary line at Ferfer and then flows in a southerly direction. It does not reach the sea but loses itself in the marshes and sand-dunes near Avai not far from the Juba river. In fact, it flows into the Juba in years of exceptional rainfall. The river contains water throughout the year but becomes very shallow during the months of February and March. It has an average flood flow of about 5,400 cubic feet per second.

With the exception of these two perennial rivers the country has mainly seasonal streams locally known as tugs or doushos. These streams, apart from those whose source is a spring, are dry for most of the year. The main tugs are: Daror, Mugal, Magade, Tug-Dheer and Ghabi; most of their spate waters are lost without being used for irrigation, but their valleys often provide good pastures after rain. The overflow water in some tugs percolates into the soil and never reaches the sea. Much of country, however, is characterized by internal drainage and sedimentary remains of evaporation. This leads to salt concentrations in both ground and surface waters.

The main permanent springs in the country are: Isha Baidoa, Geel, Dalmado, Karin Bosaso, Galgolo, Biyo Kulule, Uffein, Eil, Garawe, Gaha, Tehin, Sein and Damong.

Both the Juba and Shebelle rivers provide water for agriculture in a fertile inter-riverine region that may contain as much as 7.5 million ha of potentially cultivable land of which only some 10 per cent is currently cultivated. The Shebelle river is so extensively used for irrigation that its flow seldom reaches the sea. In the inter-riverine area bananas are extensively cultivated for export, and rice and maize are also grown for domestic consumption. Grapefruits and papayas are also grown.

Rivers constitute important pathways by which pollutants from land-based sources enter the marine environment, and their discharge often affects the characteristics of coastal waters. The environmental impact depends on the volume of their discharge, the characteristics and level of pollutant loads carried and climatic factors.

In Somalia studies on the environmental impact have not been conducted, but it is clear that the impact must be there since large amounts of fertilizers are being used. They are also extensively sprayed in the agricultural areas, and the water of the Juba river flows into the sea, as mentioned above.

The country has laws concerning water use and agricultural land, and institutions dealing with the use and distribution of water and development of agriculture. These laws will be dealt with under National Aspects.

Land-based sources of pollution

Somalia is a developing country where the level of industrialization and urbanization is still relatively modest. Consequently, general pollution of the marine environment caused by wastes from land-based sources is not very serious as compared to the high levels found in more industrialized countries. Nevertheless, there are some localized problems of marine pollution from land-based sources. Marine pollution is caused by domestic wastes, mainly in urban areas along the coast, and may develop into a serious pollution problem in the future. In some coastal locations of Mogadishu, raw sewage is directly discharged into the coastal waters and this is a potential hazard to human health and the marine environment. Although no systematic survey of present waste management practices by coastal communities appears to have been carried out yet, the problem is there.

Town planning laws and a sanitory code do exist but they contain no anti-pollution measures. The majority of the industries existing in the country are medium-scale and located inland, except for the sugar factory of Marreere, so the pollution threat to the marine environment is not very serious at present. There are laws on water, ports and industries but these contain little on the control of pollution.

Untreated industrial effluent is dicharged into the sea in Mogadishu. An abbatoir, slaughtering about 50 camels, 200 cows and 150 goats and sheep daily is located on the beach. The raw effluent containing blood, intestinal waste and suspended solids, are disposed of through a closed pipe into an open ditch which serves as a treatment pond. The overflow from the pond goes along a shallow open drain into another open ditch for further biological treatment. The system allows an overflow of the water rich in organic waste into the inshore waters. The volume of waste from the abattoir is fairly large and its polluting effect on the coastal waters and the beach is considerable, especially during the rainy seasons, due to large volumes of run-off and flooding. The pollution impact on the coastal waters caused by the waste from the abattoir and the adjacent municipal dump calls for investigation. The unhealthy incursion of the abattoir waste into the sea has attracted sharks into the lagoon waters and they have killed about 10-15 people who were swimming from the lido beach.

Importance and state of coastal traffic

Coastal traffic is very important for Somalia since it has a very long coast and most trade is done by sea. Somalia also has the benefit of the facilities of four strategically placed ports. Of these Mogadishu is the most important, handling in 1978 about 58 per cent of the total traffic. Berbera, Kismayo and Merca handled 25, 12 and 5 per cent respectively. The sector contributes significantly to invisible earnings. In 1979, about So. Shs. 30 million profit was generated by the four major ports. Smaller harbours such as Bosaso and Mait, which are frequented by smaller ships, specially dhows, contribute to regional incomes. In 1979 livestock exports from these two ports amounted to 100,000 head. The sector is also a major employer, with 959 permanent staff and 2,545 casually employed stevedores.

Virtually all international commodity transactions in Somalia are done by sea. The total traffic through the four major parts of Mogadishu, Berbera, Kismayo and Merca amounted to 758,000 tonnes in 1978. 76 per cent of this total was in imports and 24 per cent exports. Livestock and bananas accounted for more than two thirds of total exports.

In 1978 about half the imports were petroleum products. When operations at Mogadishu refinery resume at full capacity these imports will be replaced by crude oil. Among dry cargo imports, cement is particularly significant. Other important commodity imports include essential food items handled as bagged cargo.

The construction of a new port at Mogadishu in 1977 represented a major improvement in the marine transport infrastructure. As an indication of the impact of this improvement, tonnage passing through Mogadishu increased from 287,000 tonnes in 1973 to 441,000 tonnes in 1978.

Because of the increasing importance of the shipping trade to the Somali economy, the Ministry of Marine Transport and Ports was created in 1974. The Ministry is responsible for the commercial ports, marine communication and the Somali Shipping Agency. The Somali Ports Authority is an autonomous government agency responsible for operating and maintaining the commercial ports under the Ministry of Marine Transport and Ports.

Type of products imported and exported by sea

The products imported by sea are generally foodstuffs and consumer goods, textiles, oil, automobiles and spare parts finished products, domestic appliances, building materials, machinery and equipment. Products exported by sea are livestock, bananas, hides and skins, heavy fuel oil, meat and meat preparations, fish and fish preparations, myrrh and incense.

Offshore exploration and exploitation activities

There is at present no production of oil in Somalia, but great importance is being given to oil exploration. Drilling is under way in many places, including offshore on the north coast and the extreme southern coastal area.

A number of world-wide petroleum companies are searching for oil in Somalia and there are at present at least five "concession groups". American oil companies are currently drilling offshore about 200 miles north of Mogadishu with the help of a ten-thousand ton exploration ship Discoverer 511. The exploratory well, named "Maregh-1", was dug over 10,000 feet below the surface of the Indian Ocean. This was the 50th exploratory well drilled in Somalia and the fifth offshore well. Esso Exploration Inc. of the United States has been directly funding this offshore drilling and along with ARCO Petroleum, another American oil company, has been helping the Somali people to find oil at this site. This major maritime petroleum exploration effort has been costing some US$140,000 (So.Shs.2,107,000) per day.

The American oil exploration ship, Discoverer, has a crew of about 125 including two Somali petroleum trainees who are geology graduates from the Somali National University and employees of the Ministry of Minerals and Water Resources.

American Oil Companies have invested at least $100 million in the search for oil in Somalia over the last forty years. A group of ELF-Somalia geologists have conducted seismic explosions along the north-eastern coast. The firm has also concluded a new agreement with the Government with regard to the entire coast around Kismayu, some 3,850 m2 . Some promising results have been found near Berbera in the Daga Shebelle region basin, where numerous deposits of heavy oil have been found. A number of wells in the coastal basin have reported gas.

Government policy is to encourage private companies to intensify their oil and natural gas investigations. The increased tempo of activity is likely to continue since, in 1981, the Government ontained a credit of US$6 million from the Intergovernmental Development Association (IDA) for partial financing of a project. Somalia has a mining code which has provisions concerning oil exploration, and this is analysed in the section on national aspects.

Refining

There is a refinery called Iraq-Soma which is situated 14km from Mogadishu and normally refines around 300,000 tonnes of crude per year. The crude used to be imported from Iraq but at present it comes from Saudi Arabia. It is brought by tankers of between 20,000 dwt to 100,000 dwt. The refined products are mostly for local consumption but some heavy fuel oil is also exported.

There are no estimates of the amount of pollution of the sea by oil as a result of the on going exploration and the effluent from the refinery. But tar balls are sometimes seen along the coast and on the beaches. No oil leakage or other accident has been reported from exploration. Frequent spills of small quantities of oil are not uncommon in the harbours during operational transfer of oil from crude-oil tankers to storage reception facilities on land.

Importance of coastal navigation

With its very long coastline Somalia's coastal navigation has its own importance. Since remote times, Somali craftsmen have been building their traditional boats capable of sailing long voyages along the coast and even to far-away coasts of other countries. These traditional boats were destroyed along with the boatyards by a cyclone in 1971. It is however anticipated that there will contine to be a place for some years to come for local craft such as the houri, the beden and the jahasi. Such boats are important because traditional skills are used to construct them and because they are still the most practical craft available for use in the most remote parts of the country. However, further study on possible improvements to these existing boats is already being undertaken by the Ministry of Marine Transport and Ports. This study will help in the construction of an improved version of these traditional boats built up over generations.

INTERNATIONAL ASPECTS

Somalia is a party to the following conventions:

- International Convention for the Safety of Life at Sea, London, 1974;

  It seems we have ratified the International Convention for he Safety of Life at Sea, signed in London on 17 June, 1960. We have in our records a law No. 18 of 10 December, 1966 which ratified this convention. But there is no evidence that we have ratified the similar convention of 1974, mentioned above, if it is different from the one of 1960.

- United Nations Convention on the Law of the Sea, Kingston, 1982;

  We were one of the regular participants in the United Nations Law of the Sea Conference and are signatories to the United Nations Convention on the Law of the Sea but have not yet ratified it.

- Charter of the Organization of African Unity, Addis Ababa, 1963;

  Somalia ratified this charter by virtue of a law No. 20 of 23 August, 1963.

Official position of Somalia concerning the United Nations Convention on the Law of the Sea

Regarding Section 2 of the United Nations Convention on the Law of the Sea, the legal position is as follows:

The Maritime Code of 1959 in its article 1, defined the limits of the territorial sea in the following terms:

> "The sovereignty of the territory embraces the zone of the sea to the distance of six nautical miles along the continental and insular coasts. The distance is measured from the coastline by the low tide."

This paragraph was however amended and replaced by article 3 of law No. 7 of 1 November, 1966, which read as follows:-

> "Subject to the generally accepted rules of International Law, the portion of sea to the extent of twelve nautical miles within the continental and insular coasts shall be under the sovereignty of the State. The extent shall be measured from the coastal line along the low-water mark".

This itself was amended by article 1 of law No. 37 of 10 September, 1972,to the following effect --

> "The Somali territorial sea includes the portion of the sea to the extent of 200 nautical miles within the continental and insular coasts";

Therefore, the existing law extends Somali sovereignty to a distance of 200 nautical miles.

We have however signed the United Nations Convention on the Law of the Sea but have not ratified it yet. Though we still support the convention we will not let any State question our already acquired rights under law No. 37 of 10 September, 1972. As to part XII of the convention we fully support the provisions of protection and preservation of the marine environment and are obliged under this part to protect and preserve the marine environment. We do not at present have any legislation dealing with this but we are taking steps to draft a law to combat pollution.

Bilateral agreements in marine affairs

Somalia has many bilateral agreements with many countries in different aspects of marine affairs such as fishing, shipping, boat-building and port construction.

Fishing

In the past, offshore fishing activities were undertaken by joint ventures mainly with Russian involvement - notably the Soviet/Somalfish operation with about ten trawlers. Trawling was undertaken in depths of up to 800m on the relatively narrow continental shelf, and the most productive range seems to have been 200 to 400m. The total catch of the ten Russian ships over nearly three years was about 8,300 tonnes of fish and 1,300 tonnes of lobster-tails. But this project suffered a set-back in 1977 when Somalfish lost its entire fleet of trawlers.

Current offshore fishing agreements are as follows:

Somalitica

An Italian 60m stern freezer trawler, the Antoniette Madre, which is licensed under a joint agreement between the Delta Co., the Ministry of Fisheries and the coastal development project, carries out offshore fishing.

Somalfish/Straits Fisheries

Two Australia-built vessels were delivered to the Somali Government on a joint venture between the Straits Fisheries of Singapore and Somalfish. These vessels fish offshore for lobster and other species and land their frozen catch in Kismayo and Mogadishu.

Siadco (Somali/Iraqi)

The Somali-Iraqi joint venture company Siadco is planning to introduce six Spanish-built twin-rigged trawlers and two Polish-built freezer trawlers.

Somalfish/Yugoslavia

A joint venture with Yugoslavia is planned which will employ a fleet of 23m trawlers and 20 smaller fishing boats imported from Yugoslavia.

Bosasso Fisheries

A pre-feasibility study has been carried out for a commercial fishing operation centre in Bosasso. If subsequent studies confirm its viability, an Italian company, in conjunction with the Somali Co-operative Movement, will begin a production and marketing operation.

In addition to the above-mentioned fishing joint ventures and bilateral agreements there are a few Italian, Greek, Egyptian and Japanese trawlers fishing in Somali waters. These trawlers are given fishing rights under concessions granted by the Ministry of Fisheries under the Maritime Code of 1959 because there is still no separate fisheries legislation although a separate Ministry of Fisheries was established in 1977 (law No. 17 of 3 February, 1977).

According to the Maritime Code, fishing activities, whether conducted by Somali or foreign nationals, may be carried out pursuant only to a concession given by the Ministry of Fisheries. A concession is a non-exclusive permit to fish in a specific area and is subject to payment of "rent" determined by the issuing authority. The duration of a concession may extend up to nine years and is subject to certain conditions provided for by the law. Concessions may be revoked at any time if the public interest requires, in which case adequate compensation is given for any fixed installations. Concessions may also be cancelled owing to the default of the concessionaire, in which case no compensation is payable. Fishing without a valid concession or licence is punishable with imprisonment and fine.

The concession holder or the licensee is required to land 20 to 25 per cent of the catch or, at the option of the Ministry of Fisheries, to pay 20-25 per cent of the value of the catch at the international market price.

There are also projects involving international organizations or bilateral agreements to build cold storage facilities in the coastal cities for storing fish.

Kismayo freezer factory

Built in 1968 by American "Sea Food" interests processing lobster-tails and crab, it has worked only for six months since 1970. The machinery and factory appear outwardly to be in good condition and an FAO project is at present bringing the factory back into commission and incorporating sea-borne transport of catches from Kulmis and Ras Chiamboni where small freezer units exist. Also part of the FAO project is a proposal for a 800t cold storage and freezing factory facility to be built near the existing one.

Kismayo, which is only about 400 km away from the capital Mogadishu, possesses features which make it ideal for development as a major fishing centre. There is a new road connection to Mogadishu, and the existing harbour facility provides deep berths and sheltered anchorage.

Cold storage facility in Berbera

It is proposed by the Danish International Development Agency (DANIDA) to install cold storage facilities in the port area of Berbera in the northern part of the country. Associated with the cold store will be a prime mover and refrigerated containers. These will transport fish to the inland markets of Hargeisa and Burao, the other principal towns of the north, for retail sale.

With relatively rapid development, the volume of traffic has substantially increased during the last decade, especially in marine transport. To cope with this rising transportation demand, substantial investments have been made in transhipment and cargo handling facilities, and in port installations, which have been financed through bilateral and multilateral assistance or joint ventures.

One such joint venture is the the Somali Helenic Shipping Company which was established on 26 June, 1979 on the basis of an agreement signed by both the Government of Somalia and Messrs. Condaras Ltd. of Greece. The agreement was ratified on 6 July, 1981 in Mogadishu and its main conditions are:

- The purpose of the joint venture is to carry on the business of international maritime transport of livestock. In particular the company shall have the power to manage, operate and charter the vessels of the participating owning companies of this joint venture and to acquire sufficient other vessels if and when required.

- The capital of the company is one hundred thousand US dollars.

- The agreement shall be for a period of ten years and shall be renewed automatically for a further period of ten years.

The joint venture has the following priorities:

- to assist shippers to find vessels or, if unavoidable, chartering vessels by acting as broker;

- to assist shippers in issuing shipping documents i.e. handling all paper work;

- to assist in freight remittances;

- to provide guidance to masters of chartered vessels in carrying and handling livestock;

- to assist shippers in their communication with consignees in ports of destination;

- to keep statistics on livestock exports and sea transport;

- to look for new markets for Somali livestock export;

- to provide administrative support.

Under bilateral agreement, it is planned to add two additional "330" berths in the Berbera Port, to be financed by a grant from the United States to the value of US$40 million. Construction is scheduled to begin in 1983.

In the field of boat-building Somalia has a project financed by Swedish aid. The GRP Boatyard and Factory is situated on the coast to the west of Mogadishu and construction was completed in 1976. The initial work programme was to construct a hundred 6.3m GRP motorized fishing boats of which 33 have already been completed. Moulds are available to produce 10m fishing boats.

In the field of the environment, Somalia is one of the eight countries who have signed the convention of the Red Sea and Gulf of Aden Environment Programme (PERSGA). Preparatory work on the action plan began in 1974 and was organized by UNESCO together with the Arab League Educational, Cultural and Scientific Organization (ALECSO). In 1981, a new and more comprehensive action plan for the conservation of the marine environment and development of coastal areas in the Red Sea and the Gulf of Aden was drawn up. It was adopted in 1982. UNEP acts as an advisory body to this plan and Somalia is one of the participating countries.

NATIONAL ASPECTS

The Constitution

The new Somali Constitution (Decree of the President of the Somali Democratic Republic No. 46 of 16 September, 1979) in its article 5 states that "Territorial sovereignty shall extend over land, the sea, the water column, sea-bed and sub-soil, continental shelf, the islands and air space".

Article 41 of the Constitution describes the four main sectors of the Somali economy: the State sector, the co-operative sector, the private sector and the mixed sector, while article 42 provides that the land, natural marine and land-based resources shall be State property and that the State shall issue legislation to exploit these resources.

Agricultural legislation: Agricultural land law L.73 of 21/10/1975

The Minister of Agriculture grants the concession for agricultural land to co-operatives, State farms, autonomous agencies, local councils, private individual farmers or companies according to the conditions laid down in this law (article 4). The period of the concession varies from 50 years to private farmers and for an unlimited period to co-operatives, State farms, local councils and agencies (article 7). The concession for irrigation land is given for 30 hectares, and for non-irrigated land the limit is 60 hectares in the case of private farmers. The plantation land given may measure up to 100 hectares. There are, however, no limits prescribed for co-operatives, State farms, local councils, autonomous agencies and private agricultural companies (article 8). The concession holder shall pay land tax and other taxes imposed on the land prescribed by State regulations (article 17).

The Ministry of Agriculture maintains the agricultural land register in respect of the concessions granted (article 19). Any person violating the articles of the agricultural land law shall be liable to a punishment of imprisonment from two years to ten years or a fine of So.Shs.2,000 to So.Shs.10,000 and the land concession shall be cancelled.

Pesticides: Law No. 49 of 13/7/1971, S.3/7

Article 2: This law applies to the registration of

- active ingredients and pesticide formulations;
- adjuvants sold to a grower or other, used for addition at the point of use to the spray tank or other container of pesticide formulations.

It defines "pesticides" as any product proposed or used for controlling a pest and includes active ingredients, adjuvants and pesticide formulations. No person or corporate body shall distribute, sell, offer for sale or deliver within or import pesticides into the country unless it has been registered under this law (article 4).

Plant Quarantine Law: Law No. 6 of 2/1/1971

Article 2: No person or organization may import any plant or plant product except under an import permit to be obtained from the Director, which shall be in addition to any other permit required by law.

Article 3: All imports of plant and plant products shall be made through the prescribed points of entry.

Article 4: All imported plants and plant products shall be subject to quarantine inspection and, if necessary, treatment.

Article 6: All imported plants and plant products shall be accompanied by a phyto-sanitary certificate issued by the Ministry of Agriculture

Article 10: No person or organization may import any living insects, birds or other animals in any stage of their development as well as virus, bacteria or fungus cultures, except with an import permit from the Director of the Department of Plant Protection of the Ministry of Agriculture in advance of the importation.

Article 20: Any violation of the plant quarantine law shall be punishable with imprisonment from three to twelve months or with a fine from So.Shs.1,000 to 5,000, or both.

Water Law: Law No. 77 of 18/11/1972

Article 3: Subject to the guidance of the Minister of Mineral and Water Resources, the Water Development Agency shall have the supervisory control over the use and development of public water resources and waterworks, excluding irrigation schemes.

Article 4: Every person shall have the right to use, for domestic and non-domestic purposes, water from public water sources provided that he shall not:

- draw more water than is reasonably necessary;

- pollute water or cause any damage to the public source;

- change the natural source of water.

Article 11: The Ministry may in case of drought or for other reasons of public interest, on the proposal of the agency or the competent regional or district authority, declare any area an "Area of limited use." In such a case, the agency may, with the approval of the Minister, impose special limitations regarding the extraction, distribution and use of water.

Article 12: No one shall dig deep wells or construct bellehs in any place without the prior written permission from the agency. This shall not prohibit the digging of shallow wells in the interior, away from townships and villages, for drawing water for domestic needs.

Article 14: Any person who violates the provisions of this law shall be guilty of an offence punishable with a fine not exceeding So.Shs.1,000 or imprisonment not exceeding six months or to both such fine and imprisonment.

Law on Range Development and Management: Law No.3 of 4/2/1979

Article 2: The Minister of Livestock, Forestry and Range, in consultation with the General Manager of the National Range Agency and the regional and district staff, could declare any area in the Somali Democratic Republic a Range Development Area.

Article 3: The Minister, on the advice of the General Manager and in consultation with the Regional Authority, can declare any area in the country a grazing reserve. The reserve so declared could be a seasonal grazing reserve, a rotational grazing reserve, a famine reserve or an absolute reserve.

Article 4: If at any time the agency considers the management of certain land necessary with the intention of soil conservation, erosion control or revegetation it has the power in consultation with the Ministry, to abolish and control:

- agricultural sites,

- cultivated or bush cleared areas,

- areas where fire is used for management, or areas where vegetation is cut, and

- areas used as dams, wells, reservoirs and rivers.

For the sound management of the rangelands and proper utilization of water, the agency can take the following steps:

(a) Protection and control of river banks, valleys, rivers, wells, dams, berkads and reservoirs;

(b) Prevention and control of soil erosion;

(c) Development of indigenous fodder and importation of exotic fodder beneficial to livestock;

(d) Establishment of fodder production farms;

(e) Formation of fodder banks;

(f) Establishment of livestock and co-operative ranches;

(g) Conduct a land survey;

(h) Conduct a census of nomads and livestock.

Article 8: It has been seen that uncontrolled development of water could cause serious damage to the rangeland through encouragement of livestock. It is deemed necessary for the agency to control the development of water harvesting known as berkads, balliyo, waro, and wells. The water development agency shall seek advice from the Range Agency as to the location of the water points of wells, reservoirs etc. This only applies to the rural water development and in no way affects the urban water supply. All water harvesting systems (berkads, balli and waro, etc.) must be licensed.

Article 12: The Minister or any person authorized by him may grant licences for all or any of the purposes in this law.

Article 14: Any person who commits an offence under this law shall be liable to conviction to a prison term of six to nine months or a fine of So.Shs. 600 to 1,200.

Law on fauna (hunting) and forest conservation: Law No. 15 of of 25/1/1969.

Article 3 of this law prescribes certain areas to be declared as game reserves, and hunting in these game reserves is prohibited (article 4) except with a licence given by the Minister (article 20).

Article 7 states that no person shall wilfully or negligently cause any bush or grass fire, or fell, cut, burn, injure or remove any standing tree, shrub, bush, sapling, seedling or any part thereof on a game reserve, except by and in accordance

with the written permission of the Minister of Livestock, Forestry and Range previously sought and obtained, and, if any part of the reserve is included in a forest reserve, the Head of Forest and Game Services or his duly authorized representative.

Article 51 of the law provides for the declaration of forest reserves. The President of the Republic may on the proposal of the Minster, having heard the council of Ministers, by decree declare any area as a forest reserve.

Article 60: the Minister may, after having heard the opinion of the District Commissioner within whose jurisdiction an area intended to be declared a grazing reserve is situated, declare any area of unreserved land to be a grazing reserve for the purpose of controlling grazing in such area.

Article 74 is a saving clause and states that nothing in this law shall effect mining claims, prospecting rights or exclusive prospecting licences which have been registered, issued or granted under the provisions of the law relating to mining propecting and exploration.

Prohibition of export of charcoal and firewood: Decree No. 6 of 25/10/1969

Under this decree, export of charcoal and firewood from the Somali Democratic Republic as well as the issue of licences for such export was prohibited. This was however partially amended by law No. 73 of 6 November 1972 whose article 2 states that the export of charcoal shall be the exclusive right of the National Commercial Agency, and the quantity of charcoal exported shall be not more than 32,500 tonnes.

Protection of wild game: Decree No. 30 of 16/12/1969

This decree was issued to prevent the destruction of the game resources of the country and to prevent the indiscriminate killing of wild game for obtaining trophies for illegal export. Article 2 of this law states that all trophy dealers are to obtain a valid licence from the competent Ministry according to the Law on Fauna (Hunting) and Forest Conservation.

Mining Code

Article 2: The entire ownership and control of all minerals are vested in the State:

- in any land in the Republic;
- under territorial sea as determined by the maritime legislation in force;
- on or under the seabed beyond territorial limits to a pointwhere the sea is 200 m in depth and beyond to such depths of the superjacent waters as admit of the exploitation of minerals.

Article 6 excludes certain areas from prospecting or mining.

Article 11 excludes members of the Government or civil service or any other person associated with the administration of the Mining Code or Regulations to acquire or hold any prospecting or mining rights.

Article 5: The Minister may with the approval of the Council of Ministers, by decree published in the official bulletin, declare any area to be closed to prospecting and mining.

Article 53: No person shall explore, prospect or mine any mineral oil except in accordance with a permit or lease granted under the provisions of the Mining code.

Article 54: Subject to the provisions of the Mining Code and Regulations, the Minister may with the approval of the council of Ministers, in the prescribed manner, grant:

(a) An oil exploration permit to explore for mineral oil in any lands and under any waters in or adjacent to the Republic as may be specified in the permit;

(b) Oil prospecting permit to prospect or drill for, extract and remove for the purpose of test and research, mineral oil from any lands and waters in or adjacent to the Republic as may be specified in the permit;

(c) An oil mining lease to explore and prospect for, mine, remove, process for sale, and dispose of mineral oil from any lands and waters in or adjacent to the Republic as may be specified in the lease.

Such a grant may be subject to such terms and conditions as the Minister may with the approval of the council of Ministers determine.

Article 55: The initial term for an oil exploration permit shall be two years which may be renewed for a maximum of three terms of one year each.

Article 96: No person shall in the course of prospecting or mining operations permit any noxious or poisonous matter to pollute water in use by the public, nor shall he discharge sand, slime or other tailings in a manner as to interfere with any such use.

Article 101: Any person who prospects or mines on any area referred to as prohibited, shall be guilty of an offence and shall be liable on conviction to a fine not exceeding So.Shs.100,000 or to imprisonment for a term not exceeding twelve months, or to both such fine and imprisonment.

Maritime Code: Decree Law No. 1 of 21/2/1959

Article 11: The maritime demesne includes: beaches, shore, ports, bays, inlets, mouths of rivers flowing into the sea, basins of salt or brackish water which directly communicate with the sea. Buildings and other works belonging to the administration, existing within the limits of the maritime demesne and of the territorial sea, are considered as pertinencies of the same demesne. The maritime administration regulates the use of the maritime demesne and exercises policies on the same.

Article 12: The shore shall include that portion of the coastline extending as far as the highest water mark at high tide. The extension of the shore shall be determined by the maritime offices on the basis of ascertainments carried out locally and of the testimony of other persons who are familiar with the place. The beach shall include the land next to the shore, which can be destined for the public use of the sea. Where the extension of the beach is not determined by the subsequent articles, it shall extend as far as the nearest land publicly or privately owned.

Article 13: The delimitation of specific zones of the maritime demesne with respect to public or private property, referred to in article 12, is effected by the Head of the maritime zone.

Article 15: The exclusion from the maritime demesne of zones which cannot be used for public sea uses are provided for by a decree of the Minister.

Article 16: Unauthorized occupation of and innovation on properties of the maritime demesne, their pertinencies, and the territorial sea are prohibited.

Article 17: The maritime administration, consistent with the needs connected with public use, can grant the occupation and use of the maritime demesne or zones of the territorial sea for a definite period of time.

Article 26: In case of submersion of goods or other materials in ports, the persons concerned must provide for their immediate removal. Should they fail to fulfil this obligation, causing danger or hindrance to navigation, the authority will order that removal to be carried out.

Article 24: Concessions for the installation and management of factories and coastal storage of flammable products located within the limits of the territorial sea are granted by the Ministry of Marine Transport and Ports.

Acticle 28: Activities carried out by anyone in ports, or generally within the limits of the maritime demesne, are subject to the supervision of the maritime authority.

Article 30: In ports and other places of call or passage of ships, fishing, deflagration of explosive substances as well as lighting of lights or fires which are likely to trouble the signalling services are subject to authorization of the maritime authority.

Article 55: When dangerous goods are clandestinely loaded on a vessel, the master, as soon as he has discovered them, must order that the same be unloaded or, if sailing, must render them inoffensive or destroy them if it is not possible to store them safely until arriving at the first port of call.

Article 66: Fishing activities are allowed to both Somali and foreign citizens in accordance with definite agreements.

Article 67: Major fishing activities on the territorial sea and permanent breeding of fish and other aquatic animals in shore areas, in demesnial maritime waters or in the territorial sea are permitted only to persons holding a concession for this purpose issued upon decree of the Minister of Fisheries. Minor fishing activities are permitted only to persons holding a licence for this purpose, issued by the maritime authority upon payment of the prescribed fees. Licenses are however not necessary for fishing with conventional means.

Article 70: The Minister of Fisheries may prohibit, without paying any indemnity, fishing activities in conceded sea areas or in specific zones, for reasons connected with public needs or with sailing or maritime signal requirements.

Article 71: Whatever the circumstances, fishing by means of dynamite or similar materials, as well as the use of electric current as a direct means of stunning, or throwing or dissolving substances in water to enervate, stun or kill fish and other aquatic animals, is prohibited. Catching and selling animals thus stunned and killed is likewise prohibited.

Maritime crimes

Article 212: The master who, on finding a Somali seaman abandoned in a foreign country in which there is no consular authority, fails without justified reason to give him assistance on board and repatriate him, is punished by imprisonment of up to six months or a fine of up to So.Shs.240. If the failure of assistance involves several persons, the punishment is doubled and if it causes personal injuries the punishment is imprisonment from one to six years and from three to eight years if it causes death.

Article 213: The master of a national or foreign ship, dhow or craft who fails to give assistance to vessels or persons in danger or else fails to attempt salvage in cases in which he is obliged to do so, shall be punished with imprisonment of up to ch 'ports' to 'port' in 1056s imprisonment from one to six years if a person receives injuries and from three to eight years if death ensues. If negligence is the cause, the punishment is imprisonment of up to six months.

Article 215: Imprisonment of up to six months or a fine of up to So.Shs.400 shall be inflicted upon anyone who arbitrarily occupies an area of the maritime demesne, prevents public use or makes unauthorized innovations on the same.

Article 216: Anyone who extracts materials referred to in Article 17 mentioned above, without any licence to do so shall be punished by imprisonment of up to two months or a fine of up to So.Shs.80.

Article 218: Anyone who, in the areas indicated in Article 30 mentioned above, carries out fishing activities without being authorized by the Ministry of Fisheries, shall be punished by a fine of up to So.Shs.40. Anyone who, in the same areas, without being authorized by the Ministry of Fisheries uses explosives or lights fires and lights which can interfere with the maritime signalling service, shall be punished by three months' imprisonment or by a fine of from So.Shs.160 to 300.

Article 234: Anyone who, without the concession or licence referred to in article 67 mentioned above:

- carries out major fishing activities shall be fined the sum of So.Shs.80 to 800;

- keeps breeding installations for fish and other aquatic animals, shall be fined from So.Shs.30 to 80;

- carries out minor fishing activities shall be fined from So.Shs.30 to 300.

Article 235: Anyone who fishes in the manner specified in Article 71 mentioned above, shall be punished with imprisonment of up to three months or by a fine of up to So.Shs. 160. Anyone who collects and sells fish and aquatic animals caught in that manner shall be fined from So.Shs.30 to 80. It can be seen that the punishments provided by these articles are very low because it has been nearly 25 years since the code was promulgated. A revision of these provisions is overdue and is under consideration.

Law on the Somali territorial sea and ports: Law No. 37 of 10/9/1972

The Somali territorial sea includes the portion of the sea to the extent of 200 nautical miles from the continental and insular coasts; the Somali territorial sea is under the sovereignty of the Somali Democratic Republic. Offences relating to crime, health and public security committed on board a vessel within the limits of the territorial sea shall be governed by Somali law.

The normal baseline for measuring the breadth of the territorial sea is the low water line along the coast. In localities where the coastline is deeply idented or if there is a fringe of islands along the coast in its immediate vicinity, the method of straight baseline joining appropriate points may be employed. Waters on the landward side of the baseline of the territorial sea form part of the internal waters of the State.

Where an island is situated witin the 200 mile limit, the belt of waters around it constitutes territorial waters. This belt shall be 200 miles wide and shall be measured from the low water mark following the sinuosities of the island. A group of islands forming part of an archipelago is considered a unit and its territorial waters shall be measured from the centre of the archipelago.

The internal maritime waters include all navigable waters in Somali rivers open for maritime vessels and maritime ports. The internal Somali waters are subject to the sovereignty of the Republic.

Passage in the territorial sea and internal waters is not allowed to vessels having the nationality of States not recognized by the Somali Democratic Republic.

Fishing in the territorial sea and regular transportation of persons and goods between Somali ports are reserved for vessels flying the Somali flag and other authorized vessels.

Any infringement of the above provision shall be punished with a fine of from So.Shs.5,000 to 100,000 and in case of repetition of the infringement by the vessel or the operator, the punishment may be doubled and the captain shall be liable for offences prescribed by the Somali penal laws and the vessel may be confiscated.

Article 5 further states that any contract of transportation made in violation is void and the vessel executing or intending to execute the contract shall be subject to a fine equal to five times the value of the freight or the fare stipulated or fixed by usage for a similar operation.

Law on offences committed by foreign ships: Law No. 6 of 1/1/1974

If a foreign ship enters a Somali port without the necessary legal documents or commits any act constituting an offence against the Somali territorial waters which may be detrimental to the Somali economy, the master or owner shall be guilty of an offence punishable with a fine of up to So.Shs.10,000. The ship shall remain in the port until the fine is paid. This law was amended by Law No.15 of 15 April, 1974 and the maximum fine was increased to So.Shs.100,000.

Port Regulations: Presidential Decree No. 67 of 15/4/1978

Section 17: Ships in ports or at anchorage or within the vicinity of a port are not under any circumstances allowed to discharge oil and other substances causing pollution or waste into the sea.

Section 21: Ships in port are not permitted to throw or discharge refuse, waste, garbage or other disposable matter into the port waters or overboard.

Section 22: Normally each port provides a garbage service at cost and the use of that service is compulsory. Where garbage clearance is not organized by the port the service shall be undertaken by the port manager.

Section 30: In the event of a vessel being grounded or stranded the master or the person in charge shall take immediate steps and reasonable precautions to prevent pollution.

Section 57: Fishing within the port waters, wharfs, piers and quays is not allowed without the specific permission of the port manager.

Section 77 prescribes a fine of So.Shs.200 to So.Shs.5,000 for any violation of the regulations. The fine shall be imposed by the port manager.

Penal provisions concerning imprisonment and fines

Article 25 of the Somali Criminal Procedure Code states the following:-

Notwithstanding anything contained in this Code, where an accused is sentenced to pay a fine and the sentence has become final, the court passing the sentence may, unless the fine is paid:

- allow time for payment of the fine and grant extension of the time so allowed;

- direct payment of the fine to be made by instalments;

- issue a warrant for the levy of the amount of the fine by seizure and sale of any property belonging to the accused;

- direct that in default of payment of the fine, the accused shall be imprisoned for a term in accordance with article 112 of the penal code. This imprisonment shall be in addition to any other term of imprisonment to which he may be sentenced;

- direct that the accused shall be searched and any money found on him applied towards the payment of such fine and the surplus,if any, returned to him (provided that the the money in his possession shall not be so applied if the court is satisfied that it does not belong to him).

Imprisonment in default of payment of a fine shall terminate whenever the fine is paid or levied by process of law. If part of the amount is paid or levied by process of law before expiry of the term of imprisonment, the period still to be served shall be proportionately reduced.

Article 112 of the Penal Code concerns equivalence between different punishments and reads as follows -

Where it is necessary to establish equivalence between pecuniary and detentive punishment, calculation shall be made on the basis of So.Shs.25 or fraction thereof, for one day of detentive punishment.

Fisheries legislation

Fisheries legislation is contained in the Maritime Code of 1959 (Decree L. No. 1 of 21/2/1959). This has been discussed in the analysis of the maritime code. The code gives powers to the Ministry of Fisheries to issue fisheries regulations which have not up to now been promulgated. A separate Ministry of Fisheries was estabished in 1977. The law establishing the Ministry of Fisheries is analysed in the section on Institutions.

The Town Planning Ordinance of 1 June, 1947 is applicable in the northern regions of the country only.

Section 10: A town planning scheme with the general object of securing proper sanitary conditions, amenities and convenience in connection with the laying out and use of the land, and of any neighbouring land, may be made in accordance with the provisions of this part of this ordinance as regards any land within the area of a township which, in the opinion of the Governor, is defective in respect of the size or arrangement of the plots or of the provision made for public places, roads, water supply, drainage, sewerage and similar public services, whether such defect be considered in relation to the land itself or to adjacent lands.

Section 13: The authority shall take into consideration the following matters and shall incorporate in the scheme such general provisions as seem needful in connection therewith:

- the alignment, adoption, naming, construction, grade level and width of streets, roads, sanitary lanes and other ways, together with the spaces therein to be utilized for carriageways, tramways, ways for fast traffic vehicles, footways, boulevards, trees, and planted or ornamental plots and for stands for traffic vehicles and for sites for services of public utility and the relation of buildings abutting thereon to the said streets, roads or other ways;

- the alteration, re-alignment, renaming, diversion, closing or suppressing of existing streets and sanitary lanes;

- the erection, character, occupation and use of buildings and other structures, the building line, the height, elevation and construction thereof, the space about the same, the percentage of any plot which may be covered by new buildings or on which old buildings may be reconstructed, the class of buildings to be erected in specified areas, and the adoption of zones within which to regulate the density of buildings for the purpose of securing the amenity of proper hygienic conditions;

- the provision, adoption, maintenance, alteration or conversion of open spaces, public and private, and of parks, parkways and public and private pleasure or recreation grounds, outspans and commonways;

- the preservation of objects of historical or archaeological interest or of natural beauty and the provision of access thereto;

- the lines of water-mains and pipes and provision of means for drainage, sewerage and sewage disposal;

- the prohibition, removal, demolition or alteration of any obstructive work;

- the payment of compensation in respect of property injuriously affected by the town planning scheme.

Onshore uses of sea-water (desalination)

Jesira Steam Power Station

In its five-year plan Somalia has included a desalination project in the shape of a steam power station near Mogadishu. As steam turbines are more reliable than diesel, it is planned to meet the increased demand for electricity by installing a complete steam power station operating on heavy fuel oil. It will consist of a condensing, non-reheat type turbo generator rated about 15MW. The project will provide a desalination plant, a 33MW transformer, ancillary equipment and buildings. The heavy fuel oil that is needed for the project is locally produced by the oil refinery at a site nearby.

Nature protection areas, coastal and marine parks

A project is under way to plan and develop the infrastructure for national parks and reserves as a base for tourism. Priority will be given to the Las Badano National Park, for which a management plan already exists. The National Parks Agency is responsible for maintaining national parks. The law establishing the Nationl Parks Agency is analysed in the section on Institutions.

Coastal tourism development

Somalia has immense potential for the development of tourism along the coast. There are endless stretches of beautiful unspoilt beaches covered in soft white sand lapped by warm waters along the 3,200 km coastline. A submerged coral reef runs along the shore from a point south of the small old port of Hobyo, north of Mogadishu to Ras Kamboni in the southern tip of the country.

Mogadishu, the capital, has an exceptionally beautiful lido beach with beach-huts and night clubs in the vicinity. For the sportsman the lido beach of Mogadishu is a little paradise of its own. The Indian Ocean offers ample opportunity for catching a prize king-fish, tuna, sail-fish, dolphin or turtle and many other kinds of fish. Skin-diving, schnorkeling and harpooning are also popular.

Some twenty kilometres south of the capital is the beautiful resort of Gezira with its exotic beach. As well as offering scenic beauty it is very quiet and the ruins and salt works nearby make it a very interesting place for tourists. Further down the coast, a modern highway takes the tourist to the banana port of Merca, which in addition to its green surroundings and excellent beach, is a very old historical town of great interest to tourists. The port city of Bravo, still further south, with its lively beach, is also of historical interst. The modern port of Kismayu combines an excellent beach with its proximity to the big game area of the lower Juba Region.

In the northern regions, Berbera, which lies on the Gulf of Aden, is the most accessible sea resort with an excellent beach and a cool climate from October to March.

The Government has made considerable efforts to promote tourism in the country and has created a full-fledged Ministry of Tourism. It has also been responsible for the construction of a number of tourist hotels in the coastal cities. In Mogadishu, several first-class hotels have been built, the latest of which is the Al-uruba, a new international-class hotel situated right on the sea-front. In addition, there is a tourist village called Wamo in Kismayo and a national park has been established nearby where the wildlife includes elephants, giraffes, hippopotamuses, rhinoceroses, zebras, leopards, cheetahs, wild cats and many species of birds.

The five-year development plan 1982-86 includes the building of luxury hotels, the improvement of beaches and tourist transport and the development of an Institute of Tourism and Training where hotel staff will be trained.

INSTITUTIONS

Ministry of Marine Transport and Ports

The Ministry of Marine Transport and Ports was established in 1977 by virtue of law No. 12 of 3/2/1977 for the development of marine transport and to improve the services connected with the ports of the country. The Ministry is also responsible for promoting and strengthening local and international navigation facilities.

The two institutions that function under the Ministry of Marine Transport and Ports are: the Somali Ports Authority and the Shipping Activities and Maritime Transport Agency. The Somali Ports Authority was originally established in 1962 but was reorganized by law No. 1 of 7 January 1973. It is responsible for the operation and management of all the ports in the country and the provision of port services. The port authority has port regulations (decree No. 67 of 15/4/1978) for the implementation of its functions. It also has the following legislation:

- port dues, decree No. 6 of 3/9/1969;
- procedure for collecting port fees, law No. 26 of 6/3/1975;
- amendment concerning port fees, law No. 41 of 30/9/1978.

Maritime Transport Agency

The National Shipping Line was established in 1972 by virtue of law No. 59 of 20 September, 1972 as amended by law No. 13 of 24/1/1975. In 1977 a Maritime Transport Agency was established of law No. 69 of 12.11.1977. The The National Shipping Agency was established in 1975 by law No. 22 of 23 February February 1975. In 1978 both these agencies were merged into one Agency for Shipping Activities and Maritime Transport, by virtue of law No. 27 of 1 June 1978, the main objectives of which are :

- to perform all activities concerning services to ships anchoring at Somali ports;
- to repair, purchase, sell or hire ships or spare parts;
- to perform any auxiliary activity connected with the shipping trade.

Ministry of Fisheries

A separate Ministry of Fisheries was created in 1977 (law No. 17 of 3 February 1977) which is responsible for all fisheries matters. Its functions include among others -

- to obtain benefits from marine resources;
- to develop a programme to make coastal settlements self-supporting;
- to organize and operate all meritime schools;
- to organize fishing support industries such as boat-yards to make new types of vessels;
- to construct technical infrastructure such as ports and cold storage;
- to prevent pollution through international law of the sea;
- to formulate laws regulating fishing in Somali waters and to organize fishing rights.

Ministry of Agriculture

The Ministry of Agriculture was established in 1962 (law No. 14 of 3 June, 1962 as amended by DL 8 of 24/5/1969). It has its own regulations which describe its departments, etc. (decree no.25 of 20/3/1965). Its scope, as mentioned in the laws of 1962 and 1965, includes organization of agriculture, agricultural economies, extension and training services, land colonization, land reclamation and improvement of agricultural research, plant protection and locust control.

Agricultural Development Corporation: Law No. 60 of 8/9/1970

This law repealed Decree No. 1 of 1966. The agricultural development corporation was established in 1970 and functions under the supervision of the Ministry of Agriculture. Its main objectives are -

- to supply at reasonable prices any agricultural materials and farm implements such as seeds, fertilizers, insecticides, weed-killers, tools, irrigation and fumigation equipment, water pumps and threshers;
- to encourage agricultural production in general by purchasing and storing, as and when possible, any agricultural produce from co-operatives and farmers and selling it with a view to effecting a stabilization of prices;
- to hire farm machinery and motor vehicles for agricultural purposes and provide maintenance for such machinery;
- to take up direct cultivation as and when necessary, so as to raise the level of food production in the country;
- to promote the formation of light industries connected with the processing of agricultural produce.

Agricultural Development Project: Law No. 5 of 19/2/1979

This agricultural project was established for the development of agriculture in the north-western region.

Its functions are, inter alia,

- to prevent the desertification of the agricultural land;
- to develop irrigation in the north-western region.

Ministry of Livestock, Forestry and Range

There were originally two ministries in 1962, the Ministry of Agriculture and Animal Husbandry and the Ministry of Health and Veterinary Services. in 1969 a separate Ministry of Animal Husbandry and Veterinary Services was created (Law No. 8 of 24 May 1969). Its objectives included:

- organization of animal husbandry, veterinary services, research and training in animal husbandry, range management and development of holding grounds.

It was later converted into the present Ministry of Livestock, Forestry and Range. The following agencies function under the supervision of this ministry.

National Range Agency: Law No. 23 of 16/8/1976

The National Range Agency was established in 1976 with the following objectives:

- to establish appropriate administrative infrastructure;
- to start a comprehensive national range development plan;
- to establish grazing and drought reserves;
- to promote the techniques of fodder production units in all environmental conditions;
- to assist and encourage the setting up of organized structures for guiding and educating livestock-owners;
- to carry out planned stock-water development in order to achieve a more efficient use of the available grazing areas;
- to strengthen the range management education and establish additional informal education programmes;
- to carry out mapping and classification of the rangeland;
- to establish a central herbarium for plant collection and identification and produce a checklist of all plants in the Somali Democratic Republic;

- to preserve the disappearing plant species or communities which are of scientific or economic importance.

National Parks Agency: Law No. 34 of 1/3/1971

Article 1: The National Parks Agency is established with effect from 13/8/1970.

Article 3: The main objective of the Agency shall be to establish and maintain national parks and reserved areas.

Ministry of minerals and water resources

The Ministry of Mining was created in 1969 (law No. 8 of 24 May, 1969) for the development of mineral resources including mining and geological survey.

Water Development Agency: Law No. 28 of 20/2/1971

The Water Development Agency is an autonomous agency functioning under the supervision of the Minister for Mineral and Water Resources. The main purpose of the Agency is the development of water resources within the country and to achieve this the agency shall promote:

- the research for the necessary water resources;
- the construction of aqueducts and water networks;
- the collection and the evaluation of all data relating to water resources and the potential thereof in the territory of Somalia;
- the preparation, programming and execution of projects relating to water resources, in order to co-ordinate the use of water within the territory of Somalia;
- the stipulation of contracts, conventions and agreements necessary for the same;
- the provision of spare parts necessary for water plants of the various local governments;
- the training of the subordinate technical and clerical personnel, in order to ensure maximum efficiency of all services.

Mogadishu Water Development Agency: Law No. 18 of 6/4/1978

This autonomous agency which comes under the Ministry of Minerals and Water Resources was established in 1978 for the following purposes:

- to study the exploration and distribution of drinking water in the Mogadishu region;
- to cope with the scarcity of water and find enough drinking water for the Mogadishu region;
- to provide reservoirs and pipes for a proper distribution network;

- to collect underground and surface water data of the region to further research;

- to do the necessary research work for achieving maximum benefits from the available water resources;

- to acquire the needful technical abilities for the implementation of the regional project;

- to organize and import the necessary equipment for the implementaton of its activities;

- to train its technicians and employees;

- to construct water filtration projects near the Shebelle river or dig wells in the neighbouring regions to procure an adequate supply of water for the Mogadishu region.

Similar autonomous water agencies were established in 1978 for Kismayu (lower Juba Region law No. 29 of 29.7.1978) and Hargeisa Region (law No. 30 of 29.7.1978) with similar objectives, i.e. to provide enough drinking water for the respective regions.

Ministry of Tourism

The National Agency for Hotels and tourism (NAT) was established in 1960 but was reorganized under law No.32 of 8 July, 1970. It has been since converted into a full-fledged Ministry with the following objectives:

- to manage hotels, restaurants and public recreation centres;

- to provide services and promote tourism;

- to import liquor.

Ministry of Planning and Co-ordination

The Ministry of Planning and Co-ordination was originally established in 1966 by virtue of law No.10 of 1/6/1966. It was converted into a Directorate General and later into a State Planning Commission, but was reconverted into a full-fledged Ministry with its own regulations (decree No. 262 of 15.11.1970).

Training Institutions

Although there are no training institutes as such dealing with environment management and pollution control administration, yet the following institutes in the country are concerned with training in maritime affairs, fisheries, agriculture and technical training:

- National Fisheries and Maritime Institute in Mogadishu;

- Mogadishu Technical Institute;

- Faculty of Marine Science and Oceanology with the Somali National University;

- Marine Research Centre.

The National Fisheries and Maritime Institute is devoted to maritime training. It offers a four-year degree course in mechanics and navigation. Other training programmes are conducted by the Somali Institute of Development, Administration and Management, the Mogadishu and Hargeisa Technical Institutes and the Afgoi Agricultural Institutes. There are proposals to set up a faculty of Marine Sciences at the National University and the Marine Research Centre (included in the National Development Plan, 1982-86).

CONCLUSIONS

Somalia has a very long coastline (3,200 km) and has many coastal cities and harbours. It has two permanently flowing rivers which must be causing pollution, but since no systematic studies have been carried out the exact extent is not known. To control this pollution there are no legal provisions except the pesticides law which has been discussed. Most of the industries are medium-scale, so pollution caused by them could not be very great. The laws establishing factories do not normally contain any anti-pollution provisions and this is a matter which should be given consideration when these laws are drafted.

As mentioned earlier, discharge of untreated industrial effluent from an abbatoir into the sea is evident in Mogadishu. The pollution caused by this abbattoir is considerable and should be obviated.

Moreover, there is no sewerage or drainage system in the country. In the capital city of Mogadishu there are septic tanks, but raw sewage flows into an open drainage system and into the sea. A study has been carried out by a firm of engineering consultants for the establishment of a master plan for mains sewerage and surface water drainage of Mogadishu. The treated effluent is to be used for controlled irrigation. Lack of funding has caused long delays in implementation. The African Development Bank is supposed to fund part of the project which is of utmost priority.

Urban sanitation in Somalia is the responsibility of the local councils, supported technically by the Ministry of Health. New equipment for a public health laboratory in Mogadishu is being provided and, with additional staff, it will ensure more regular chemical analysis in addition to bacterial testing.

Another problem is that waste disposal is carried out negligently and without environmental concern. To improve this state of affairs public environmental awareness should be increased by providing material and publications for public enlightenment. The Sanitary Code of 1936 needs to be revised and new town planning regulations should be drafted.

Great importance is at present being given to oil exploration and exploitation activities. The Mining Code, already discussed, deals with the granting of concessions for oil exploration to foreign oil companies. There are, however, no estimates of the amount of pollution caused by the oil refinery and other oil exploration activities. Tar balls are sometimes seen along the coastline and on the beaches.

Somalia has a very important project in the shape of the coastal development scheme. Following the onset of the severe drought of 1973 which progressively deprived the nomadic herdsmen and their families of their livelihood, causing widespread starvation, the Somali Government established centres along the coast

artisanal fishing. This massive undertaking began in 1975. Under the ongoing projects almost 14,000 nomads affected by the drought have been relocated in the coastal areas, where they have been taught new skills in fishing.

In 1977, a new central structure was set up to provide a formal administrative basis to this process. The Coastal Development Project established under law No. 36 of 6 April 1977 comes under the Ministry of Fisheries. Its head office is in Mogadishu but it operates the four coastal resettlement projects at Brava, El Ahmed, Eil and Adale.

The objectives for which the project was established are:

- to implement the State policy of resettlement and fisheries co-operatives;
- to plan and co-ordinate the resettlement activities;
- to resettle and train new fishermen;
- to construct schools, residential quarters, hospitals, fishing harbours for the resettlers and fishing co-operatives;
- to produce fishing equipment such as boats, fishing nets, etc,.

A similar project was established in 1976 by virtue of law No. 14 of 9/5/1976, called the Resettlement Project for the welfare of the communities so that the nomads could start a fresh life as farmers and fishermen.

In order to enhance the control of marine pollution, the Ministry of Marine Transport and Ports has drafted a law which will amend some of the articles of the Maritime Law of 1959. One of the articles of this draft law prohibits the pollution of the maritime demesne and the territorial waters. This article provides that the act of marine pollution by whatever means shall be an offence, and prescribes a punishment of one year to three years' imprisonment and a fine of So.Shs.10,000 to So.Shs.50,000.

Another article of the draft law prohibits the extraction of sand from coastal areas. Removal of sand from beaches and coastal areas for use in the construction industry is quite widespread in Somalia. This is not a pollution problem as such but it may be the single most destructive coastal industrial activity, producing severe and irreparable beach erosion in many places. Furthermore, destruction of beaches increases the amounts of particulate material in the water column, resulting in high turbidity in coastal waters, which in turn adversely affects the coastal reefs.

In this connection the Government has planned and implemented many self-help projects. Nearly seven thousand hectares of sand dunes have been stabilized under such schemes and the World Food Programme (WFP) project No. 7, 101. But this constitutes negligible progress towards solving this gigantic problem. The sand dunes are estimated to cover about 500,000 hectares.

However, this project will establish a viable and continuing programme for the arrest of encroachment of sand dunes and the fixation of dunes by determining the exact extent of dune encroachment and the causes of formation, developing cheaper and simpler fixation techniques that utilize economically useful species and laying down guidelines for the organization, monitoring and evaluation of fixation,

This draft law will probably be adopted soon. There are also proposals to revise the maritime code and port regulations, and to draft regulations for the maritime code.

TANZANIA NATIONAL REPORT : by J. Kateka

INTRODUCTION

Tanzania, with an area of 939,701 square kilometres, is the largest of the East African countries. It is bordered in the north by Kenya and Uganda, on the west by Rwanda, Burundi and Zaire, on the south-west by Zambia, and in the south by Malawi and Mozambique. On the east is the Indian Ocean. Tanzania is located south of the equator between the 3rd and 12th degrees of latitute south. 1/ It has a coastline of 800 kilometres (500 miles) stretching from the Kenya border in the north to the Mozambique border in the south. The islands of Zanzibar (which are part of the United Republic of Tanzania) lie 40 kilometres from the mainland.

According to the 1978 census, Tanzania has a population of 17.5 million. The coastal population is found in Tanga, Dar es Salaam, Coast, Lindi and Mtwara regions (annex I). The major coastal cities are Dar es Salaam, Tanga, Lindi, Mtware and Zanzibar. Dar es Salaam is the biggest city (757,346 inhabitants - 1978 consensus). Zanzibar Town is the second largest of the coastal towns with 110,669 people followed by Tanga (103,409), Mtwara (48,510), and Lindi (27,308).

The population growth is 2.8 per cent per year and constitutes an average population density of a little over 18 per square kilometre. About 90 per cent of the people live in rural areas but it would seem that the population of urban areas is increasing rapidly. For example, according to the population census of 1978, Dar es Salaam had 750,000 inhabitants. Currently, the population of Dar es Salaam is estimated to be 1.317 million (Uhuru newspaper, 2 June, 1983).

The Goverment has made a deliberate effort to contain rapid population growth in urban areas by making rural life attractive. It has provided social amenities such as water, health, education, etc. under the Ujamaa Villages Programme. This has helped stem the flow of rural people to urban areas. The major ports are Dar es Salaam, Tanga and Mtwara. Being on the important Middle-East/Cape Town sea route, many ships call in at the major ports for loading and unloading goods. Tanzanian exports are shown in annex II, most of them being agricultural products and semi-processed goods. Imports include manufactured goods, petroleum products, heavy machinery, chemicals and fertilizers.

Tanzania's rivers belong to two drainage basins: one orientated to the Indian Ocean, including the various coastal rivers of which the Pangani and Rufiji are the largest; and the other rivers in the west which empty into Lake Tanganyika. River-borne substances from domestic sewage, industrial wastes and agricultural run-off form a major source of land-based pollution which finds its way into the Indian Ocean. Direct discharge of sewage and other wastes from coastal activities constitutes another form of marine pollution. This is especially pronounced in the urban areas. Because it lies off a major sea route, the Tanzanian coastal belt has been affected by oil pollution and other wastes discharged from vessels plying the Indian Ocean. There are no available data concerning marine pollution resulting from activities in the seabed and subsoil. This may be because Tanzania's attempts to extract hydrocarbons from the seabed are still at the exploratory stages. There has been confirmation of discovery of large amounts of natural gas at Songo Songo

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1/ Taken from "Agriculture in Tanzania", published by the Information Services Division 1979, Dar es Salaam

(near Kilwa) and Kimbiji. The aim is to build an ammonia - urea plant. But, so far, there has been no confirmation of the discovery of oil, though exploration is continuing.

The fact that Tanzania has a long coastline means that coastal navigation assumes considerable importance. There is the Tanzania Coastal Shipping Company which provides shipping services connecting Tanzania's three major ports. The Chinese Tanzania Joint Shipping Company connects Tanzania and the Far East in the export and import of goods. There was the East African National Shipping Line owned by Kenya, Tanzania, Uganda and Zambia. But with the disintegration of the East African Community, the East African National Shipping Line was dissolved, though it was not part of the Community. As Tanzania's economy grows and expands, the coastal traffic will increase also. Currently there are efforts to expand Dar es Salaam Harbour which also caters for Burundi, Rwanda, Zaire and Zambia.

The proximity of Tanga port has helped Dar es Salaam to avoid congestion. At the same time, Tanga caters for the hinterland to the rich agricultural area of Kilimanjaro connected to the port by a railway line. The Central Railway line which links Dar es Salaam to Kigoma on Lake Tanganyika and Mwanza on Lake Victoria facilitates the movement of goods to and from the interior. The Tanzania/Zambia Railway (TAZARA) is jointly owned by the two countries and is used to ferry goods to and from Zambia which is a landlocked country. All this means that the traffic is fairly heavy, with almost 100 ships calling in at the three major ports every month.

INTERNATIONAL ASPECTS

There are many international agreements in the field of the environment. Tanzania is party to some, but has not ratified many of them. Nevertheless, it has legislation which is modelled on some of the conventions, though it is not party to them. This section will examine some of the conventions related to the environment and Tanzania's attitude toward them.

International Convention for the Prevention of Pollution of the Seas by Oil, London, 1954, as amended in 1962 and 1969

Tanzania is not yet a party to this convention (as amended) although preparations have been finalized for acceding to it. It would seem, however, that the coming into force of the International Convention for the Prevention of Pollution from Ships, 1973, will supersede this late accession to the 1954 convention, should Tanzania accept the 1973 convention. Despite not having acceded to the 1954 convention, Tanzania has legislation which borrows from it. The Merchant Shipping Act, 1967, Part XI on pollution, has definitions borrowed from the convention. These include "discharge", "heavy diesel oil", "mile", "oil", and "oily mixture'. While further elaboration of the Act will be dealt with in the national legislation section, suffice it to say that the non-accession to the 1954 convention by Tanzania was more of an inordinate omission rather than a deliberate opposition to the instrument. Tanzania's late accession to the 1954 convention will not be in vain because it may be some time before she accedes to the 1973 convention because of the latter's technical requirements. The reasons for not acceding to the 1954 convention (as amended in 1962 and 1969) are applicable in the case of the 1971 amendments to the 1954 convention.

International Convention for the Prevention of Pollution from Ships, London, 1973 (MARPOL)

Although Tanzania participated fully in the concluding of MARPOL 73 (she signed the Final Act), she has not ratified the convention which comes into force on 2 October, 1983. The MARPOL text adopted in 1973 at a meeting convened by the Intergovernmental Maritime Organization (formerly IMCO) contains 20 articles, 2 protocols, 5 annexes and a Protocol Relating to Intervention on the High Seas in Cases of Marine Pollution by Substances Other than Oil.

The convention was adopted after great controversy concerning jurisdiction for setting standards and their enforcement. Coastal States wanted power to set more stringent standards in respect of pollution control while major maritime powers wanted to safeguard their shipping interests. Attempts to set more stringent standards failed to obtain the required two-thirds majority, because the major shipping nations feared this would affect questions of design, equipment and manning of ships. Even nations which have special characteristics like Canada with its Arctic Waters did not succeed with their proposal for additional requirements concerning ships.

Some developing countries sought to protect their marine environment by making certain proposals regarding jurisdiction. Tanzania, supported by Kenya, sought recognition of the right to take "special measures in respect of any matter to which this convention relates." This failed to find support; in the end, the conference adopted a text leaving it to the Law of the Sea to settle the nature and extent of coastal and flag State jurisdiction. "Jurisdiction" was "construed in the light of international law in force at the time of application or interpretation of the present convention." The USSR immediately construed "jurisdiction" as 12 miles, to which Canada and others objected. Thus, MARPOL, instead of solving the problem, continued the conflict concerning jurisdiction by adopting a watered-down version and added to the confusion. The question will be examined further when considering the Law of the Sea Convention below.

For the first time an effort was made to define marine pollution. MARPOL adopted a definition of "harmful substances" which is borrowed from that of the Group of Experts on Scientific Aspects of Marine Pollution (GESAMP). The term "discharge" was widened (compared with the 1954 convention) to include "any escape, disposal, spilling, leaking, pumping, emitting or emptying." But it excluded dumping within the meaning of the 1972 London Anti-dumping Convention, release of harmful substances arising from exploration of seabed resources and release of harmful substances resulting from scientific research into pollution abatement or control.

When considering accession to the convention, Tanzania will have to consider the requirements under MARPOL, especially the Regulations for Prevention of Pollution by Oil (Annex I) and Regulations for the Control of Pollution by Noxious Liquid Substances in Bulk (Annex II). These two annexes are compulsory under the convention, unlike Annexes III, IV and V which are optional. Among the requirements are the provision of reception facilities at oil loading terminals, repair ports and in other ports in which ships have oily residues to discharge. This will imply additional costs because already under the 1954 convention (as amended) Tanzania is facing problems to conform to the requirements of article VIII (which is a precursor of Regulation 12 of MARPOL Oil Pollution Regulations). It will need some assistance from IMO to facilitate conformity to MARPOL requirements.

International Regulations for Preventing Collisions at Sea, London, 1960 (and 1972 amendments to the 1960 Regulations)

Tanzania has not yet acceded to the 1960 Regulations (as amended in 1972) although in the Merchant Shipping Act 1967, she has embodied provisions from the Collision Regulations. In the definition part of the 1967 Act, "collision regulations mean the International Regulations for Preventing Collisions at Sea, 1960, together with such revisions thereto or substitutions therefore, as the Minister (of Communications) may, by order in the Gazette, declare to be in effect." The regulations for prevention of collisions are in Part V of the Act and will be considered below.

International Convention for the Safety of Life at Sea, London, 1974

Tanzania has not updated its Merchant Shipping Act to conform to the 1974 SOLAS Convention. In Part V of the Act, reference is made to the safety convention which, in the definition section, means the International Convention for the Safety of Life at Sea, 1960. In the Act, there is provision for the Minister to create Regulations to give effect to the Safety Convention and the Load Line Convention. Such Regulations are not to contain provisions which conflict with any of the conventions' provisions.

No reference is made to the 1966 Load Line Convention (and its amendment). In the definition section, Load Line Convention means the "International Convention respecting Load Lines, 1930". There is thus need to update the Merchant Shipping Act to bring it in line with international developments. The International Protocol Relating to the International Convention for the Safety of Life at Sea, 1978, calls for the same comments made concerning the SOLAS convention. Tanzania has already accepted a list of modifications to the 1974 SOLAS convention, although not party to the convention. These corrections were sent to concerned parties through a proc s-verbal of rectification earlier this year by the IMO Secretary-General.

International Convention Relating to the Intervention on the High Seas in Cases of Oil Pollution Casualties, Brussels, 1969

Tanzania is not yet party to the 1969 International Convention. This convention, which was prompted by the Torrey Canyon incident, is of tremendous importance to coastal States faced with grave and imminent danger to their coastline or related interests from pollution or threat of pollution by oil, following upon a maritime casualty, which may be expected to result in major harmful consequences. It may be worth looking into the possibility of accepting this convention because of Tanzania's geographical location near a major maritime route. The same reasoning would apply to the Protocol Relating to Intervention on the High Seas in Cases of Marine Pollution by Substances Other than Oil, London, 1973, which extends the scope of the 1969 Intervention Convention. Like the 1969 convention, this protocol, which came into force on 30 March, 1983, is not yet incorporated in any legislation in Tanzania.

International Convention on Civil Liability for Oil Pollution Damage, Brussels, 1969

Tanzania has not yet acceded to this convention, nor has she adopted any legislation to implement it. Tanzania relies on municipal courts to enforce civil liability for oil pollution damage. This amounts "to fishing in troubled waters" as Carl Fleischer has observed in his article on "Pollution from Seaborne Sources." To attempt to fix liability by a variety of national legal instruments without taking into account the nature of international shipping, coupled with mobility of vessels, could lead to "forum shopping", i.e., the claimant trying to find the forum and legislation which will give him the best possible position vis-à-vis the defendant.

Tanzania would benefit by joining conventions aimed at uniformity in international rules regarding liability and compensation for oil pollution damage. As we shall see below, Tanzania's legislation stipulates very low penalties for such damage.

International Convention on the Establishment of an International Fund for Compensation of Oil Pollution Damage, Brussels, 1971

Tanzania is not yet party to this convention which entered into force in October, 1978. It aims at supplementing the 1969 Civil Liability Convention by establishing an International Oil Pollution Compensation Fund. The Fund's obligations are set at 450 million francs for any one incident. It would be to Tanzania's benefit to provide for necessary legislation. Tanzania has not acceded to the International Convention on the Liability of Operations of Nuclear Ships, Brussels, 1962, nor to the Convention Relating to the Civil Liability in the Field of Maritime Carriage of Nuclear Material, 1971. In addition to bureaucratic inertia, Tanzania's non-accession may be due to the fact that she does not have nuclear-operated ships nor does she involve herself in maritime carriage of nuclear material. Tanzania is more concerned with oil pollution. Consequently, she has not legislated on nuclear materials which she has no immediate ability to acquire.

Tanzania has not yet accepted the International Convention Relating to the Limitation of the Liability of Owners of Sea-going Ships, Brussels, 1957. By this convention, the ship-owner's liability is limited when the damage is a result of his own personal "fault or privity" (as opposed to that of his servants). Since Tanzania's shipping fleet is in its infancy, it would seeem she would be in no hurry to join this convention which would distribute liability even to the consumer (through compulsory insurance). Tanzania has not acceded to the 1979 Protocol to the 1957 Convention, Brussels. Nor has she acceded to the Convention on Limitation of Liability for Maritime Claims, London, 1976.

Convention on the High Seas, Geneva, 1958, and the Convention on the Continental Shelf, Geneva, 1958

Tanzania has not ratified either of these two conventions, although she briefly contemplated the idea of ratifying the Continental Shelf Convention.

The High Seas Convention provides for freedoms of the sea (article 2). The list of freedoms is not exhaustive, but it is generally agreed that polluting the seas is not one of these freedoms. General principles of law starting with the Trail Smelter Arbitration, the 1949 Corfu Channel Case and the Nuclear Tests Case (ICJ) would seem to preclude this. A flaw in the High Seas Convention has been the acceptance of flags of convenience in shipping which has contributed to pollution and threatens the very freedom of the high seas. Tanzania is opposed to such an arrangement of flags of convenience. Most developing countries have expressed their opposition, especially in UNCTAD's Shipping Committee. There has to be a genuine link between the ship and the State of registry. Articles 24 and 25 of the High Seas Convention fall short by limiting themselves to oil pollution and radio-active waste. Tanzania's legislation provides for making regulations on oil pollution, but is not based on the High Seas Convention. The adoption of the 1982 Law of the Sea Convention would seem, however, to necessitate legislating for several contingencies. This will be considered below.

The Continental Shelf Convention does not address itself directly to the preservation of the marine environment. Implied reference is in article 5 where it is stated that the exploration of the continental shelf and the exploitation of its natural resources must not result in any unjustifiable interference with navigatio

fishing or the conservation of the living resources of the sea, nor result in any interference with fundamental oceanographic or other scientific research. This has been supplemented by the 1982 Law of the Sea Convention which covers environmental aspects of exploration and exploitation of the seabed and the conservation of living resources.

Convention on the Prevention of Marine Pollution by Dumping of Wastes and Other Matters, London, 1972

Tanzania participated in the adoption of this convention although she has not acceded to it. This convention was preceded by the adoption of the Oslo Anti-Dumping Convention which is a regional arrangement for the North-East Atlantic. The London Convention, which is global in concept, is modelled on the principles of the Oslo Convention. The famous principle 21 of the Stockholm Declaration on the Human Environment is reiterated in the London Convention by recognizing States' rights to exploit their natural resources, but prohibiting damage to the environment of other States. This is because the dumping of industrial waste which often contains heavy metals and hydrocarbons can cause severe damage to the marine environment. Thus, the convention contains a black list of prohibited items (such as mercury and mercury compounds) and a grey list of substances which are not absolutely prohibited but the dumping of which is subject to special control (e.g. arsenic, lead etc.).

In this case also (as in MARPOL), there was the question of jurisdiction. States are called upon to develop procedures for enforcing the convention, especially on the high seas, including procedures for the reporting of vessels and aircraft observed dumping in contravention of the convention. Tanzania has no legislation on the ocean dumping convention to be able to invoke its provisions. The most likely culprits are the industrialized States which are tempted to transfer the contents of their "polluted backyards" to other areas.

Treaty Banning Nuclear Weapons Tests in the Atmosphere, in Outer Space and Under Water, Moscow, 1963

Tanzania ratified the Partial Test Ban Treaty in 1964. She has no legislation on this topic. However, Tanzania has constantly expressed concern at the failure to adopt a comprehensive nuclear test ban treaty. The nuclear powers have continued to carry on underground testing because of the loophole left in the 1963 Treaty. This had led to dismay among the non-nuclear States. Tanzania, for example, has constantly opposed the Non-Proliferation Treaty (NPT) which is regarded as a cornerstone of disarmament efforts to-date. Her opposition has been the result of disenchantment with the attitude of nuclear powers which have gone on with "vertical proliferation" while they oppose "horizontal proliferation". In the absence of meaningful efforts towards general and complete disarmament, the 1963 Test Ban Treaty is insignificant.

Treaty on the Prohibition of the Emplacement of Nuclear Weapons and Other Weapons of Mass Destruction on the Seabed and the Ocean Floor and in the Subsoil thereof, Washington/London/Moscow, 1971

Tanzania signed this treaty on 11 February, 1971, but she has not ratified it. This would seem to be more of an oversight than because of any opposition to the treaty. The treaty aims at excluding nuclear weapons from being emplaced on the seabed, although nuclear powers were not precluded from carrying nuclear weapons in

submarines; instead, parties to the treaty are urged to continue negotiations in good faith concerning further measures in the field of disarmament for the prevention of an arms race on the seabed, the ocean floor and the subsoil thereof (article V).

Tanzania is not yet party to the Convention on the Prohibition of Military or any Other Hostile Use of Environmental Modification Techniques, 1977 (ENMOD), which came into force on 5 October, 1978. The prohibition of military or other hostile use of environmental modification techniques is a positive measure in efforts to preserve the environment. The scientific and technological innovations of mankind could cause grave harm. In principle, Tanzania welcomed the adoption of the convention and it is a matter of time before she ratifies the instrument.

African Convention on the Conservation of Nature and Natural Resources, Algiers, 1968

Tanzania is party to this convention (acceptance - 1974) which came into force in 1969. The convention aims at the adoption of measures (by parties) necessary to ensure conservation, utilization and development of soil, water, flora, and faunal resources in accordance with scientific principles and with regard to the best interests of the people (article II). The London Convention relative to the preservation of fauna and flora in their natural state, 1933, to which Tanzania was party (1963), ceased to have effect in States in which the African Convention (Algiers) came into force. Tanzania has not legislated on the basis of the convention itself, although she has legislation covering topics raised in article II of the convention. These are the Wildlife Conservation Act (No. 12 of 1974) which repealed and replaced the Fauna Conservation Ordinance, the Water Utilization Act (No. 42 of 1974), the Land Ordinance (Cap 113), the Town and Country Planning Ordinance (Cap 378) and the Range Development and Management Act (No. 51 of 1964).

Tanzania is not party to the 1979 Convention on the Conservation of Migratory Species of Wild Animals which protects those species of wild animals that migrate across or outside national jurisdiction boundaries, but she has arrangements with neighbouring countries which have conservation legislation on wildlife.

Convention on International Trade in Endangered Species of Wild Fauna and Flora, Washington, 1973

Tanzania became party in 1980 to this convention which came into force in 1975. Tanzania has no legislation modelled on the convention although the Wildlife Conservation Act empowers the Minister of Natural Resources to declare any area to be a game controlled area. This will be considered below.

Tanzania is a founding member of the Organization of African Unity (OAU) and as such signed the Charter of the Organization of African Unity in Addis Ababa on 25 May, 1963. The Charter provides a continental forum to independent African States. The aim was to gain Africa's total liberation and unity. The former is nearly achieved and efforts are being made for closer economic and political unity. The charter provides for co-operation in economic matters, including transport and communications. Provision is made for co-operation in health, sanitation, nutrition, scientific and technical co-operation. Several Commissions are provided for under the charter, including specialized commissions in the fields enumerated above.

The United Nations Convention on the Law of the Sea (UNCLOS), Kingston, 1982

Tanzania has participated fully from the days of the Seabed Committee up to the adoption of the UNCLOS Convention in 1982. Tanzania signed the convention on 10 December, 1982 and is in the process of ratifying it. She has no specific legislation to implement the convention although she has to look into the question when she ratifies it.

In 1979, Tanzania passed a proclamation (Government Notice No. 209 of 7 September) which declared its territorial waters as extending to 50 miles (see copy of proclamation - Annex III). When the UNCLOS Convention comes into force, Tanzania will have to review her stand so as to conform to the 12 miles provided for in the convention. She will be compensated for by the provision for a 200 miles exclusive economic zone in which jurisdiction for regulating living resources, preservation of the marine environment and scientific research is provided for.

Tanzania participated fully in the negotiations of Part XII of the convention concerning protection and preservation of the marine environment. For the first time States have the obligation to protect and preserve the marine environment. This is a long way from Stockholm in 1972 when even accepting such an obligation generated heated discussion at the Human Environment Conference.

The main discussion and controversy in the conference centred around setting standards for prevention, reduction and control of marine pollution and their enforcement. There is provision for pollution control from land-based sources which are the biggest contributor to marine pollution. This is because land-based sources touch on national interests which States are loath to relinquish. Some countries are concerned that their economic development could be affected if very high standards are set for control of land-based sources of pollution. That is why even the Convention for the Prevention of Marine Pollution from Land-based Sources, Paris, 1974 is more of a pactum de contrahendo because it employs the language of "States undertake", "States shall endeavour", etc. in order to overcome objections by certain States. The objection is stronger among developing countries who fear that they will be at a disadvantage because of heavy economic burdens imposed on them. The Founex Report (which was prepared for the Stockholm Conference) observed that:

> "There is a fear that the insistence of the developed countries on rigorous environment standards of products exchanged in international trade may well give rise to neo-protectionism. Many of the developing countries will be loath to see their production and employment suffer if their export prices rise as environmental standards are enforced."
>
> These remarks were echoed by African experts on the environment who met in Dakar in April, 1972, to prepare for the Stockholm Conference on the Human Environment. But it is suggested that such concern should not be carried too far because in the long run if haphazard economic development takes place, a high price will be paid in environmental problems which will have to be corrected.

But the most controversial question in the UNCLOS negotiations centred on vessel source pollution, although it constitutes only a fifth of marine pollution. Major shipping nations were concerned with unreasonable standards being set which would affect design, equipment and manning of ships. In the end, only the case of ice-covered waters (article 234) was accepted as a possible exception due to their special characteristics and as such would call for more stringent standards in the construction of ships.

Pollution of the marine environment is defined and modelled on the GESAMP definition already referred to. Dumping is also defined in article 1. Throughout Part XII there is competing demand between advocates of international standards and those who want stronger coastal State jurisdiction concerning vessel source pollution. A distinction is drawn between coastal State and flag State jurisdiction in such a manner as not to prejudice the interests of any party.

Concerning enforcement, distinction is made between terrritorial and exclusive economic jurisdiction. Mostly monetary penalties would apply for violations, although some wanted imprisonment added.

Tanzania was for strong coastal jurisdiction in view of the bitter experience with flag State jurisdiction. There have been few serious efforts by flag States to enforce international regulations and consequently coastal States have to protect themselves. On the whole, Tanzania is reasonably satisfied with the UNCLOS Convention.

Other agreements

Tanzania and Kenya concluded an agreement by exchange of notes concerning the delimitation of the territorial waters boundary between the two States, in 1975 (Annex IV). The agreement, which entered into force on 9 July, 1976 also provides for fishing and fisheries. Indigenous fishermen from both countries engaged in fishing for subsistence are permitted to fish within 12 nautical miles of either side of the territorial sea boundary in accordance with existing regulations. This means that commercial and sport fishing is not allowed on the other State's boundary. As we shall see, there has been widespread use of unacceptable fishing methods, such as explosives, which deplete stocks. The agreement also provides for reciprocal recognition of fisheries licences, regulations and practices of either State applicable to indigenous fishermen. Tanzania's promulgation of 50 miles territorial sea did not affect this agreement, for the proclamation provides for the medium line principle to regulate the boundary between Kenya and Tanzania.

The Phyto-Sanitary Convention for Africa, South the the Sahara, London, 1954 was extended to all metropolitan territories under the control of colonial powers (UK, Belgium, Portugal and France). Tanzania, on attaining independence, accepted the convention on 31 May, 1962. This convention aims at preventing the introduction of diseases, insect pests and other enemies of plants into any part of Africa, South of the Sahara, eradicating and controlling such diseases and pests and preventing their spread. Tanzania has the Tropical Pesticides Research Institute Act, 1979. This legislation is not based on the convention although it covers topics referred to in the latter.

Tanzania was party to the convention of the African Migratory Locust Organization until 1976 when she withdrew from OICMA because migratory locusts were unlikely to attack Tanzania. If they did, Tanzania is party to the Desert Locust Control Organization and the Red Locust Control Organization which can take care of the situation.

NATIONAL ASPECTS

There is considerable legislation in Tanzania concerning the environment but it is scattered. Some of it is out of date while other laws are in disuse in the sense that no follow-up regulations for implementation have been enacted. There are also many ministries and institutions which handle issues related to the environment. The Ministers of Agriculture, Health, Livestock, Lands, Housing and Urban Development, Natural Resources and Tourism, Communications and Transport, Minerals, Water and Energy --all have something to do with environmental management in the country. There is no central organization to control environment issues. Equally, there are several research institutes handling environment questions. These include the National Scientific Research Council, Tanzania Industrial Research and Development Organization (TIRDO), the Tanzania Livestock Research Organization, Tanzania Agricultural Research Organization, Tanzania Forestry Research Institute, Tanzania Fisheries Research Institute and the Zanzibar Marine Research Centre. There are also several parastatal organizations such as the Tanzania Harbours Authority, which play a key role in matters of the environment. Before considering specific legislation related to the environment, it may be helpful to look briefly at the land tenure system which has a great bearing on the environment.

Land tenure and land use

Since acquiring independence, Tanzania has adopted a system whereby all land is publicly owned by the State. This was further elucidated in the Arusha Declaration, 1967, (Tanzania's blueprint on socialism and self-reliance) where stress for development is laid on land, people, good policies and good leadership.

The main forms of land tenure in Tanzania are under customary law, communal ownership, leaseholds, and rights of occupancy. Most land is held under customary and communal ownership. The Tanzanian constitution does not provide for the mode of ownership of land and natural resources. Instead, provisions are to be found in various forms of legislation.

The Land Ordinance (Cap 113)

This was enacted in 1923, but has undergone several amendments, especially since 1961. Under this legislation all public lands and all rights are under the President's control. The President is empowered to grant rights of occupancy by issuing certificates of occupancy. But the legislation that revolutionized land tenure was the Freehold Titles (Conversion) and Government Leases Act, 1963 (Cap 523). By this Act, all "fee simple" (estates of absolute ownership created before 26 January, 1923, when the land ordinance was passed) were converted into government leases for a term of 99 years from the "appointed day" (1 July, 1963). All "settled land" within the meaning of the UK Settled Land Acts, 1882 to 1890, was vested in the trustees of the settlement or in the Public Trustee (if no trustees). In communal ownership, the Villages Act (No. 21 of 1975) vested Ujamaa villages with legal personality as co-operative entities. Although villages were registered, they did not own land under any system of permanence.

Under a new system, villages will be allocated land on a 999 years basis, virtually a permanency. Villages will have power to sublease any part of their land for shorter periods (33 to 99 years' subleases). The Ministry of Lands is to work out a land tenure system(s) which will maximize village land care, utilization and improvement, while respecting customary law as far as possible. Each household will normally be given its own long-term sublease, but the right to free sale will not be

included in that lease. The leases and Rights of Occupancy systems will continue, although the Ministry of Lands has been urged to streamline the systems and procedures of land allocation so as to avoid delay and confusion in granting land occupancy. (New policy in "The Agricultural Policy of Tanzania", issued by the Ministry of Agriculture, Dar es Salaam, 31 March, 1983.

By the Town and Country Planning Ordinance (Cap 378),the Minister for Lands, Housing and Urban Development may, in consultation with the Local Authority, declare an area to be a planning area. Such areas have been declared in respect of cities, municipalities and townships. Area Planning Committees have been established in respect of each planning area. By section 78, the Minister may make regulations for the better execution of the provisions and purposes of Cap 378. For example, under the Town and Country Planning (Use Classes) Regulations (GN 504 of 1960), all uses of buildings and uses of land are classified under groups, e.g. dwelling houses, residential buildings, shops, public buildings and places of assembly and industrial (service trades, special and general). In the last category, small-scale industries, craftsman trades and special industries are classified. Special industries which may be offensive by reason of smell, noise or fumes, or dangerous by reason of the use and storage of dangerous or inflammable materials, or inimical to public health owing to vermin or other causes, are classified in a special group. So are industrial processes involving the production or treatment of noxious, offensive or explosive chemicals or gases or compounds thereof. The bulk storage of petroleum products and inflammable fuel oils or explosive gases in included in this group. This order has been repeated in the Town and Country Planning (Development and Zoning) (Capital Development Area) Regulations (GN No. 14 of 1980) in respect of the new capital, Dodoma. An area of interest to the environment under this order is the requirement that, when considering an application for a planning consent, the Special Committee (under Cap 378) may impose conditions regulating and controlling the deposit and disposal of waste from any industrial process, whether by burning or by effluent through rivers, lakes or other watercourses, natural or otherwise, or by vehicular traffic.

Despite the existence of the Town and Country Planning legislation, its invocation has been sketchy. There is no limit on town growth and population and no proper liaison between the physical planner and the economic planner. For example, the Second Five Year Development Plan identified five growth Centres to restrain the population from flocking to Dar es Salaam. In the third Five Year Plan, the growth centres were extended to each region. Unfortunately, the facilities and amenities which were to attract the population from Dar es Salaam were not adequately provided. As a result the major urban centres are growing very fast.

Shipping Legislation and the Environment (marine pollution by discharge of oil from ships)

The Merchant Shipping Act (No. 43 of 1967), which consists of 319 sections and three schedules, provides for the control, regulation and orderly development of merchant shipping. The legislation does not regulate inland transport. But by the Merchant Shipping Amendment Act No. 21 of 1980, regulations made by the Minister responsible for shipping matters concerning manning of ships and competence of seamen apply to the regulation of inland transport. The Merchant Shipping (Certificaton of Marine Officers) Regulations 1981 (GN 130 of 6/11/81) elaborate on the requirements and standards of seamen's certificates and competence. These regulations borrow provisions from the IMO 1978 International Convention on Training, Certificaton and Watchkeeping of Seafarers which Tanzania ratified earlier this year, 1983.

Of direct relevance to the environment is Part IX (mislabelled as Part XI) of the 1967 Act. This part concerns pollution of the sea by oil. It defines "discharge" in relation to oil or oily mixtures as any discharge, escape or leak howsoever caused. "Oil" means crude oil, fuel oil, heavy diesel oil and lubricating oil and includes coal-tar and bitumen. "Oily mixture" means a mixture containing not less than 100 parts of oil in 1,000,000 parts of the mixture. The discharge of oil or oily mixture by any ship into a harbour or into the sea within 100 miles from the Tanzania coast, or by any Tanzanian ship within 100 miles of any land, makes the owner or master of such ship guilty of an offence and on conviction liable to a fine not exceeding 10,000 shillings. Incentive is given to persons providing information or giving evidence which leads to the conviction of any master or owner of any ship by authorizing the court trying the case to award a portion (not exceeding one half) of the fine imposed to the informer. The court is empowered to order the person convicted to defray expenses incurred in removing pollution or making good any damage attributable to the offence. Also if any vessel within the limits of a port emits dark smoke or soot or ash or grit or gritty particles for a period in excess of five minutes in any one hour, the owner or master of such vessel is guilty of an offence.

As observed in an earlier section, this legislation needs updating. In addition to some of the definitions, the scope of the Act should be extended to cover substances other than oil which pollute the sea. The sanctions provided for are also minimal and negligible. Ten thousand shillings (less than US$ 1,000) is nothing in comparison to the damage that can be caused by a major maritime casualty or by a deliberate act of pollution. The owner or master of a ship would readily pay. To deter such activities, it is necessary to increase the fine. The experience in 1981 of a spill of oil off Dar es Salaam harbour brought this point home. It is to be hoped urgent action will be taken to rectify the situation.

The legislation does not cover the installation of special equipment in ships, special provisions on the transfer of oil, establishment of oil records and the provision of reception facilities at oil loading terminals and repair ports. Tanzania, when party to the 1954 Oil Pollution Convention (as amended) and 1973 MARPOL Convention, will have to conform to the requirements of the conventions. IMO has started to offer technical assistance to this end.

In Part V of the Merchant Shipping Act, there is provision for safety at sea. The Minister is empowered to draw up safety regulations and issue certificates to passenger and cargo ships in accordance with the 1960 SOLAS Convention (the Act and amendment make no reference to the 1974 SOLAS Convention). There is provision for the observance of collision regulations (in the definition section, they mean the International Regulations for Preventing Collisions at Sea, 1960) in order to prevent collisions. The Minister is also empowered to create regulations for the carriage of dangerous goods by ship. The investigation of shipping casualties by the Commissioner of Customs, with the assistance of assessors, is provided for. The Commissioner may cancel or suspend the licence of a master, mate or engineer if a shipping casualty is the result of a wrongful act or default, incompetence or any act of gross misconduct.

These provisions are incorporated in order to enhance safety at sea and to minimize shipping accidents, especially to tankers, which can cause great damage to the sea and coast. But some regulations, such as those on safety under section 197, have not been promulgated. This lacuna has to be filled.

The legislation provides for jurisdiction over any vessel lying near or passing by the Tanzanian coast and for jurisdiction in case of offences on board the ship (sections 290 and 291). In case of conflict of laws, the merchant shipping legislation is to apply. If there is no provision, the case is to be governed by the law of the port at which the ship is registered. There is also provision for reciprocal jurisdiction. Tanzania needs to accede to some of the conventions referred to earlier on as well as to consolidate its shipping legislation in order to take advantage of issues of reciprocal jurisdiction.

Natural Resources and the Environment

Fisheries

The Fisheries Act, 1970, provides for the protection, conservation, development, regulation and control of fish, fish products, aquatic flora and products thereof. It defines territorial waters as extending across the sea to a distance of twelve nautical miles. The Minister responsible for fisheries is empowered to regulate the fish industry and may declare any area or waters to be a controlled area in relation to fish, fish products or aquatic flora. Preference is given to citizens by prohibiting the Director of Fisheries (formerly known as the Chief Fisheries Officer) from granting any licence or authority to non-citizens except with the consent in writing of the Minister. The Minister has power to make regulations, inter alia, prohibiting or regulating the use of any description of fishing gear, prohibiting or restricting the use of any poisonous or toxic substance for the purpose of fishing or the capturing, collection, gathering, killing or injuring of immature fish, preventing the obstruction and pollution of territorial waters and establishing marine parks, sanctuaries or reserves for any purpose whatsoever. Penalties for contravening these regulations may be a fine not exceeding 20,000 shillings or imprisonment for not more than five years or both fine and imprisonment. The Director may exempt by licence any person or organization from provisions of the legislation in the interests of science and research.

In implementing section 7 of the Act, the Minister has promulgated the Fisheries (General) Regulations (Government Notice No. 57 of 16/3/73). These regulations provide for the registration and licensing of fishing vessels, fishermen and fish dealers. Citizens are encouraged to fish by paying a lower fee for a licence than non-citizens (reference is now to a resident of two years and above and non-residents). Certain fishing methods are exempted from the need to take out a licence (see fourth schedule of the Regulations). Foreign vessels are excluded from the territorial waters of Tanzania for fishing purposes unless authorized by legislation of any treaty that Tanzania is party to. This is mostly to safeguard against long-distance fishermen who use advanced and sophisticated gear to deplete coastal waters, particularly in developing countries.

The Fisheries (Explosives, Poisons and Water Pollution) Regulation (GN 109 of 17/9/82) defines dynamited fish, explosives (which means dynamite), poison and water pollution. Water pollution is defined as "man-made or man-induced alteration of chemical, physical, biological or radiological integrity of water". Any person who causes or knowingly permits to flow or pass into water any solid liquid or gaseous matter at a concentration which is injurious to any aquatic flora or fauna is guilty of an offence. The Director of Fisheries, in consultation with related agencies (e.g. officials of the Ministry of Industries), is empowered to require any person or body of persons who contravene the Regulation provisions to clean the polluted water within a reasonable period at their own expense. Penalties for the use of explosives and poisons are also provided for. The Fisheries legislation has not

been brought into line with the 1973 Proclamation on the Territorial Sea (which declared fifty miles). Perhaps in view of the UNCLOS Convention, there is no need to change the legislation, because when Tanzania ratifies the convention, she will have to conform to 12 miles territorial sea. But the definition of pollution needs updating along the lines of the UNCLOS Convention.

The use of explosives is a major problem in the conservation of fisheries. The principal of the Mbegani Fisheries Centre is quoted in the Daily News of 19/4/83 as stating that fish resources are being depleted due to dynamite fishing practised by local fishermen. This illegal practice not only leads to poor catches, but is also doing serious damage to marine life. With the shortage of meat, small fishermen are increasingly resorting to this destructive fishing method in order to make quick profits. Courts will have to impose maximum penalties under the fisheries legislation in order to discourage the practice.

The establishment of marine parks, sanctuaries or reserves, though provided for in the legislation, is now controlled by the National Parks (regulated by the National Parks Ordinance, Cap 412). These marine parks, destined to be breeding grounds and tourist attractions, have not yet been developed. Only Mbudia Island off Kunduchi Beach in Dar es Salaam has been established with its coral rocks which provide breeding facilities. Tourists are also visiting this island in large numbers. But again the tourist industry is controlled by a separate entity, the Tanzania Tourist Corporation. Luckily the fishing and tourist industries are under the same Ministry (Natural Resources and Tourism). This facilitates co-ordination.

Exploration and exploitation of mineral resources of the sea

The Petroleum (Exploration and Production Act, 1980, applies to Zanzibar as well as mainland Tanzania, thus making petroleum exploration a Union matter. The Act applies to and in respect of the seabed and subsoil of the continental shelf. Petroleum is defined as:

(a) Any naturally occurring hydrocarbon, whether in gaseous, liquid, or solid state;

(b) Any naturally occurring mixture of hydrocarbons, whether in a gaseous, liquid, or solid state; or

(c) Any naturally occurring mixture of one or more hydrocarbons (whether in a gaseous, liquid, or solid state) and any other substance, and includes any petroleum as defined in (a), (b) and (c) that has been returned to a natural reservoir, but does not include coal (or its extracts) or other rock. Because of its importance, the control over petroleum is vested in the United Republic.

However, the Minister responsible for petroleum is empowered to grant exploration and development licences. A registered holder of an exploraton licence may be required by the Minister to carry out studies and investigations, which may include physical impact studies, into the possible effects of the petroleum industry on the environment (section 34). The registered holder of a licence is required to secure the safety, health and welfare of his workmen, control the flow and prevent the waste or escape in the exploration or development area of petroleum, and to prevent the pollution of any water-well, spring, stream, river, lake, reservoir, estuary, harbour or area of sea by escape of petroleum, salt water, drilling fluid, chemical additive, gas (not being petroleum), or any other waste product or effluent. Surface rights of fishing, navigation and any other lawful operation are

not to be interfered with by a licence holder carrying on operations. The Minister may make regulations concerning, inter alia, conserving and preventing the waste of the natural resources (whether petroleum or otherwise), the control or the flow and the prevention of the escape of petroleum, water, gases (other than noxious or deleterious matter).

As observed earlier on, oil exploration and seabed exploitation in Tanzania are relatively new ventures. Therefore, not much has been experienced in terms of polluting the marine environment from exploration and exploitation activities. But it is encouraging that the legislation has provided for the preservation of the marine environment in advance, before damage occurs.

Wildlife Conservation

This is controlled by the Wildlife Conservation Act, 1974, which empowers the President to declare any area of Tanganyika to be a game reserve. The cutting, burning or injuring of any standing tree, shrub, bush etc. is prohibited as well as wilful or negligent cause of bush or grass fire. Hunting in a game reserve is to be carried out only on written permission from the Director of Wildlife. The grazing of livestock in a game reserve is also prohibited. The President may declare any animal national game and a protected species . Scientific research, among others, is encouraged by the issuance of a President's licence to persons to hunt, capture or photograph animals with or without paying a fee. Killing of young animals or pregnant ones is an offence. Use of certain hunting methods (e.g. mechanically propelled vehicle, poison or poisoned bait and weapon) is prohibited. Certain trophies (ivory, rhinoceros horn, hippo teeth, animal tusks, horns and skin) need to be registered by the licensee. Manufacture of articles from trophies is prohibited except with a trophy dealer's licence. Any animal which has been killed or captured without licence or is found dead becomes government property.

Because of the high incidence of poaching, the burden of proof for unlawful hunting, wounding, killing or capturing any animal illegally and possessing trophies shifts to the accused (section 70). Any person who provides information leading to the conviction of the accused is to be awarded a sum of money (section 83). The Minister is empowered to enact regulations for the better conservation of wildlife. Animals have been specified in the schedules and different fines are imposed depending on the importance of the game concerned.

The penalties under the legislation need to be stiffened because there is a real threat that some animals could be made extinct in a short time. It is this concern which led to the "Save the Rhino" campaign which was launched by the President in June, 1983. In the coastal area, the Ruaha Game Reserve is of interest. The National Parks, the Ngorongoro Conservation Area and forest reserves established under the Forests Ordinance are conservation areas (see definition section). Animals and forests are a great natural heritage and need to be preserved. The Government has launched a tree planting campaign to ward off desertification which has already affected neighbouring countries. Efforts are being made to avoid mistakes committed elsewhere. This is the more necessary because Tanzania has some of the best natural heritage in the world, including Ngorongoro Crater Serengeti, Lake Manyara, Kilimanjaro, etc. This can and does contribute towards tourism development in the country.

Mining

The Mining Act, 1979, regulates the searching for mining minerals on the land which includes land beneath the territorial waters and the continental shelf (see definition section). Mineral

gaseous form, occurring naturally in or on the earth, or in or under the seabed, formed by or subject to a geological process, but does not include petroleum as defined in the Petroleum (Exploration and Production) Act, 1980 (see above). Radioactive mineral includes a mineral which contains by weight at least one twentieth of one per cent (0.05 per cent) or uranium or thorium or any combination thereof.

Applications for the grant of a mining licence have to be accompanied by a statement of the programmes of proposed mining operations, including a statement of, inter alia, proposals for the prevention or treatment of pollution, the safeguarding of fishing and navigation (if relevant), the progressive reclamation and rehabilitation of any land disturbed by mining, and for the minimization of the effects of mining on water areas, if relevant, and adjoining lands; and proposals, if relevant, for the elimination of any special risks associated with the mining or treatment of radioactive minerals. No mining licence is to be granted unless the programme of proposed mining operations takes proper account of environmental and safety factors (see sections 37 and 39 of the Act). Mining operations are not to be carried out in national parks, forest reserves, game reserves and range development areas, except with the written consent of the authority concerned. Penalties are provided in case there is export of radioactive minerals without complying with the law regulating such activities. The Commissioner for Mines has power of entry to any prospecting or mining area when a nuisance exists and may direct the abatement or removal of such a nuisance. The Minister for Minerals may make Regulations, inter alia, for the regulation of matters relating to sanitation and health. The Act repeals the Mining Ordinance.

Like the petroleum legislation, the Mining Act has anticipated hazards to the environment and has provided for them. But the latter has more provisions on the environment than the former. With increasing oil prospecting, there may be a need to add some provisions on the environment, which are in the Mining Act, to the Petroleum Act.

Water and sewage

The Water Utilization (control and regulation) Act, 1974, vests all water in Lake Tanganyika in the United Republic. The Central Water and Basin Water Boards are conferred powers to grant water rights in the country. Holders of a mining lease and petroleum licence are given rights to use underground water of the land comprised in the lease/licence. By section 33(4) of the Act, any person who pollutes the water in any river, stream or watercourse or in any body of surface water to such an extent as to be likely to cause injury directly or indirectly to public health, to livestock, fish, to crops, etc., shall be guilty of an offence and liable upon conviction to a fine not exceeding 2,000 shillings or imprisonment not exceeding twelve months, or to both.

But of more interest to the environment is the Water Utilization (control and regulation) (Amendment) Act, 1981. It defines "direct discharge", "effluent", "effluent treatment plant", "indirect discharge" and "pollutant" (see definition section). It seems there is no standard definition of "pollution" and "pollutant" in the body of legislation on the environment. Pollutant in this Amendment means any substance or characteristic, whether or not harmful, added or imposed on to natural or supplied water. Among the functions of the Central Water Board is the control and regulation of water pollution. In this connection, the Central Board has power to carry out and promote research and investigations into the causes and ways for the efficient prevention or control of water pollution, to formulate and recommend to the Government comprehensive plans for the regulation of the discharge

of effluents by industrial, trade and other categories of users of water, to recommend to the Minister a uniform procedure for the sampling and examination of water, sewage and industrial effluents, to advise and assist the Government, public authorities and other persons or bodies of persons by proposing measures for the more efficient control or prevention of water pollution. With modifications, the Basin Water Board is given similar functions.

The Amendment prohibits the discharge of effluents from any commercial, industrial or other trade waste systems into receiving waters without the consent of a Water Officer. One of the conditions to every water right is to treat or modify effluents as to comply with prescribed effluent and receiving water standards (contained in schedule I) before their direct discharge. The owner of a water right is to submit periodic reports to the Water Officer setting out the nature of wastes or effluents produced by his use of the water. He is obliged to install machinery and other facilities necessary for the taking of samples and the collection and treatment of effluents.

The standards to be complied with by water users are set out in the First and Second Schedules of the Amendment Act. On standards for receiving waters, there are categories: category 1 for domestic use water, category 2 for animal use water and category 3 for irrigation and other industrial use water. Substances have maximum permissible concentration of discharge of effluents (see first schedule). For effluent standards each substance/characteristic has maximum permissible value (see second schedule). The Tanzanian Temporary Standards of Quality of Domestic Water are compared to international ones (WHO 1963). For toxic substances the allowable maximum for Tanzanian standard rural water is slightly higher than the WHO allowable maximum. For substances affecting potability and suitability of water for general domestic use, the two standards are almost the same (see also table A4 III and IV concerning Dangers of Economic Poisons and Hazards of Ionizing Radiations).

The National Urban Water Supply Act, 1981, as its title implies, regulates the supply of water to urban areas. The National Urban Water Authority (NUWA) has been established whose functions, inter alia, are to promote the conservation and proper use of water resources in towns, to advise the Government in the formulation of policies relating to the development and conservation of water and potable water standards in relation to towns, and the educating of urban dwellers on public health aspects of water supply.

The NUWA is to conform to the provisions of the Water Utilization (Control and Regulation) Act in the exercise of its functions. The Authority can make Rules to protect water from pollution. Any person who deposits or allows or causes to be deposited any earth, material or liquid in such a manner or place that it may be washed, fall or be carried into the waterworks is guilty of an offence and is liable on conviction to a twenty thousand shilling fine. The Minister may make Regulations, inter alia, for the prevention of waste of water.

The Water Utilization legislation (as amended) is the most comprehensive in the regulation and control of water supply as well as avoiding its pollution. This is an area which does not need revision, but implementation.

This 1981 Amendment gives effect to the Report of the Effluent Standards Committee, 1977, which was set up through the initiative of the Chief Government Chemist. The Rufiji Basin Development Authority (Rubada) Act, 1975, regulates the generation of hydroelectric power, flood control, agricultural activities, forestry, fishing and tourism promotion. The Minister for Economic Affairs and Development Planning is empowered to draw up regulations designed to minimize pollution of the

waters of any river, lake or dam within the Development Area. No such regulations have been promulgated.

The Townships Ordinance (Cap 101) empowers the Minister responsible for local government to declare any place in Tanzania to be a township and to make rules for the health, order and good government of townships. The Township Rules give power of entry to a Health Officer to investigate the existence of any nuisance (defined in Rule 11) the search for mosquitoes, destroying of sanitary premises and to prevent the deposit of refuse on streets. Pollution of water is an offence punishable by a fine of forty shillings for each day such pollution continues. The keeping of animals such as cattle in certain areas may be prohibited and any stray animal impounded. Section 56 of the Township (Building) Rules provides for drainage facilities (waste water pipes and public toilets). But for the Public Health (Sewage and Drainage) Ordinance - Cap 336 is the principal legislation dealing with the question.

The Townships legislation needs updating. It is over 50 years old and only ad hoc changes have been made. Thus the practice and the legislation leave gaps. In waste disposal, for example, the Tabata dumping site (which caters for Dar es Salaam) has overspilled to Msimbazi River and the refuse finds its way into the ocean. Efforts to establish a new dumping site at Mbagala have been hampered by lack of finance. If a new dumping site is established, to avoid repeating the Tabata problem it will be necessary to burn the waste and fence the area to prevent people from scavenging some of the waste, such as paper which is used to wrap food.

Research Institutes

Several research organizations have been set up to deal with various matters. The Tanzania National Scientific Research Council Act, 1968, established the Council to undertake research in agriculture, industry, commerce, mining, etc. But it does not specifically provide for research into environment questions. The Tanzania Industrial Research and Development Organization (TIRDO) Act, 1979, set up TIRDO among whose functions are providing the Government and other bodies with advice and technical facilities in industrial enterprises so as to improve performance and to avert or minimize the source of industrial pollution, and to carry out (and promote the carrying out of) applied research and investigation into the causes of, and the ways of abating and preventing, industrial pollution. The Tanzania Fisheries Research Institute Act, 1980, provides for the promotion and conduct of research in fisheries. The functions of the Institute include research in various aspects of fisheries for the purpose of establishing, improving or developing better methods or techniques of fishing, farming fish or manufacturing or using fish or fish products and carrying out research programmes designed to facilitate the discovery of the causes of, and the ways of abating and preventing, marine pollution.

Other research organizations were set up by the Tanzania Livestock Research Organization Act, 1980, the Tanzania Agricultural Research Organization Act, 1980, the Serengeti Wildlife Research Institute Act, 1980, and the Tanzania Forestry Research Institute Act, 1980, to provide research in livestock, agriculture, wildlife and forestry respectively. All these organizations have provided practical expert services to the country. The Tropical Pesticides Research Institute (TPRI) Act, 1979, has carried out environmental pollution research which is one of its functions. What is needed is proper co-ordination among the various research organizations so as to avoid duplication.

CONCLUSION

Tanzania has much legislation concerning the environment, but it has to be consolidated in order to avoid existing gaps. This can best be done if there is an overall co-ordinating agency. There is a move to establish the National Council for the Environment and draft legislation has already been prepared. This Council will go a long way toward grouping the remaining current proliferation of environmental matters in Ministries and other agencies. At the time of writing this report, the draft legislation had not yet been made public.

There is an inter-Ministerial Committee under the Ministry of Lands, Housing and Urban Development which meets from time to time to co-ordinate and map strategy on environmental issues. The Committee has organized visits to various agencies in the country to see the practical aspects of environmental matters. The Committee has also organized seminars and workshops to consider various aspects of environmental questions. The Government is conducting a campaign to make the public aware of soil conservation and better utilization, to discourage denuding forests (the Government encourages a "plant a tree" campaign), to save endangered wildlife species from extinction, etc. In school curricula, the Goverment has begun to include issues on the environment. The adult education programme also directly incorporates questions of the environment such as hygiene, health and agriculture.

Some of the outdated legislation such as the Township Ordinance will need repeal and amendment. The new legislation enacted on environment issues will have to set standards. For example, there are several interpretations of "pollution" in the legislation, leading to confusion. These will have to be clarified.

The Protection from Radiation Act, 1983, which controls the uses of radioactive material and matters connected with the protection of people from harm resulting from ionizing radiation, provides for consultation with other bodies such as the National Scientific Research Council, the Petroleum Development Corporation, the National Institute of Medical Research, etc. It prohibits the use of radioactive material unless registration has been obtained. But it does not set standards. The Minister is left to make Regulations on the environment without special reference to the International Atomic Energy Agency. There is need to have recourse to IAEA technical assistance in this field.

On the question of international agreements, Tanzania needs to accept more of these and to legislate for their implementation. The current practice where legislation emerges without consultation with relevant international organizations such as IMO, FAO, IAEA etc., should be avoided. Maximum use can be made of these agencies in order to avoid loopholes in environment legislation making.

The major drawback is the human and financial resources to cater for the implementation and formulation of legislation. Technical assistance has been sought by the Government to reduce the problem.

But on the whole, Tanzania has done its best in legislating on the environment and the various institutes involved in research on the environment will help the Government evolve the right machinery.

In interviews with various heads of departments and parastatals, there emerged a problem of ignorance on the issues of the environment. It will need a deliberate effort to educate these executives so that practical programmes on the environment can then be put to the people and receive the necessary political support. The will is there. What is needed is action.

ANNEX I

1978 Census

Extracted from "1978 Population Census, Volume II"
issued by Bureau of Statistics,
Ministry of Planning and Economic Affairs, 1981

1.	Coast Region:		
	(a)	Bagamoyo District total population	222 172
	(b)	Kisarawe District " "	135 342
	(c)	Rufiji District " "	23 105
		Total for the Region:	516 586
2.	Dar es Salaam Region:		
	(a)	Kinondoni District total population	366 159
	(b)	Ilala District " "	218 426
	(c)	Temeke District " "	258 505
		Total for the Region:	843 090
3.	Lindi Region:		
	(a)	Kilwa District total population	113 872
	(b)	Lindi Rural " "	244 983
	(c)	Nichingwea District " "	102 051
	(d)	Liwale District " "	39 406
	(e)	Lindi Urban " "	27 312
		Total for the Region:	572 624
4.	Mtwara Region:		
	(a)	Mtwara Rural District total polulation	144 033
	(b)	Newala District " "	307 385
	(c)	Masasi District " "	271 909
	(d)	Mtwara District " "	68 491
		Total for the Region:	771 818

ZANZIBAR POPULATION - TOTAL 476 111

5.	South Region:		
	(a)	Central District total population	29 797
	(b)	South District " "	21 952
		Total for the Region:	51 749

6.	North Region:		
	(a) North A District	total population	48 124
	(b) North B District	" "	28 893
		Total for the Region:	77 017
7.	Town/West Region:		
	(a) West District	total population	31 535
	(b) Town District	" "	110 506
		Total for the Region:	142 041
8.	North Pemba Region:		
	(a) Wete District	total population	58 923
	(b) Konde District	" "	47 367
		Total for the Region:	106 290
9.	South Pemba Region:		
	(a) Chake Chake District	total population	47 208
	(b) Mkoani District	" "	51 806
		Total for the Region:	99 014

ANNEX II

VALUES OF MAJOR DOMESTIC EXPORTS IN TANZANIA SHILLINGS

FOR THE PAST THREE YEARS (1978-1980)

	1978		1979		1980	
ARTICLE DESCRIPTION	QUANTITY IN METRIC TONNES	VALUE IN TANZANIA SHILLINGS	QUANTITY IN METRIC TONNES	VALUE IN TANZANIA SHILLINGS	QUANTITY IN METRIC TONNES	VALUE IN TANZANIA SHILLINGS
Meat and meat preparations	413.4	3 387 138.0	90.8	2 628 529.0	64.3	541 110 751.0
Beans, peas and lentils (prepared for sowing)	12 268.6	49 505 713.0	-	41 834 487.0	-	82 124 753.0
Sugar, sugar preparations and honey	23 576.5	48 841 804.0	10 732.2	23 178 522.0	32 589.8	51 182 843.0
Coffee	50 892.6	1 303 285 502.0	42 358.6	1 227 810 980.0	51 364.5	1 119 298 419.0
Tea	14 977.3	168 193 415.0	12 015.2	162 005 445.0	13 662.5	190 881 547.0

Feeding stuff for animals (not including unmilled cereals)	44 680.8	39 366 549.0	1 147.9	7 817 437.0	40 517.5	61 033 494.0
Spices	1 571.4	85 344 526.0	453.8	5 167 313.0	3 582.8	251 279 152.0
Tobacco-Manufactured	10 960.2	221 486 815.0	7 040.6	148 906 816.0	8 142.9	98 807 400.0
Hides, skins and fur skins undressed	-	18 386 858.0	-	40 886 832.0	-	30 906 182.0
Oil seeds oil nuts and oil kernels	22 074.0	64 521 877.0	14 523.0	37 068 352.0	72 962.0	42 157 944.0
Wood lumber and cork	-	7 856 777.0	-	8 515 458.0	-	827 670.0
Cotton	46 992.8	420 312 239.0	31 408.4	398 500 000.0	46 005.2	359 186 500.0
Petroleum and petroleum products	-	108 382 355.0	-	136 483 195.0	-	199 549 019.0
Textile yarn fabrics made up articles and related products	-	130 796 341.0	-	249 691 664.0	-	249 912 697.0

Pearls and precious and semi-precious stones	0.3	230 441 744.0	1.46	252 093 676.0	1.24	115 884 060.0
Diamonds	0.06	228 618 228.0	0.02	249 990 499.0	0.02	113 837 888.0
Sisal fibres	75 037.0	211 268 594.0	146 839.0	253 078 317.0	146 003.0	245 229 502.0
Cashew nuts, raw (in shells)	44 200.0	160 887 459.0	39 593.0	144 880 447.0	21 340.0	90 171 790.0
Pyrethrum extracts	68.7	17 257 301.0	19.6	9 693 518.0	27.5	13 278 960.0
Cashew kernels	36 346.0	67 903 447.0	38 706.0	83 106 940.0	46 780.0	123 921 430.0
Sub-total	-	3 586 045 169.0	-	3 483 240 317.0	-	3 987 982 011.0
Others	-	45 699 373.0	-	641 390 671.0	-	91 339 211.0
Grand Total	-	3 631 744 542.0	-	4 124 631 988.0	-	4 079 321 222.0
Milk and cream (including butter, milk and whey)	12 147.7	78 826 316.0	-	52 415 467.0	-	82 058 625.0

Wheat (including spelt) and meslin, unmilled	69 760.9	89 767 722.0	21 276.3	58 449 776.0	24 031.4	4 766 509.0
Rice	47 248.1	132 489 037.0	29 427.8	71 425 286.0	103 652.6	393 971 923.0
Maize (corn) unmilled	724.7	1 912 263.0	170.1	827 649.0	253 615.0	435 820 123.0
Sugar refined	53 550.0	65 721 085.0	10 501,6	21 709 925.0	17 300.0	82 317 855.0
Petroleum, crude and partly refined for further refining	1 106 452.0	514 426 687.0	594 426.0	580 104 416.0	550 862.0	988 039 822.0
Chemical elements and compounds	-	179 689 672.0	-	159 903 306.0	-	180 297 411.0
Pigments, paints, varnishes and related materials	-	19 965 373.0	-	11 706 602.0	-	17 380 764.0
Medicinal and pharmaceutical products	9 614.8	296 125 937.0	4 799.4	295 622 422.0	5 004.4	271 993 755.0
Fertilizers, manufactured	50 127.0	77 560 458.0	47 532.0	41 649 629.0	64 938.0	110 528 921.0
Paper, paperboard and manufactures thereof	-	208 293 919.0	-	232 167 475.0	-	174 517 044.0

Textile yarn fabrics, made up articles and related products	-	361 495 824.0	-	303 840 605.0	-	320 852 514.0
Non-metallic minerals manufactures NES	-	127 122 573.0	-	135 815 770.0	-	112 197 955.0
Iron and steel	-	349 330 339.0	-	380 475 946.0	-	343 952 096.0
Miscellaneous manufactured articles NES	-	356 259 565.0	-	300 813 340.0	-	150 059 440.0
Agricultural machinery and implements	-	100 217 534.0	-	106 340 356.0	-	154 147 166.0
Electrical machinery apparatus and appliances	-	638 932 219.0	-	604 598 576.0	-	534 769 655.0
Transport equipment		1 574 939 519.0	-	1 853 640 511.0	-	1 157 516 195.0
Sub-total	-	4 983 075 872.0	-	5 078 596 097.0	-	5 566 251 586.0
Others	-	3 572 199 257.0	-	3 832 266 516.0	-	4 480 975 429.0
Total	-	8 555 275 129.0	-	8 910 862 613.0	-	10 047 227 015.0

ANNEX III

TERRITORIAL WATERS

Extent of territorial waters

In 1973, the United Republic of Tanzania decreed that its territorial waters should extend to a distance of fifty nautical miles (Government Notice No. 209, published on 7/9/73, Cap 596).

The delimitation of the territorial waters boundary between the United Republic of Tanzania and Kenya.

The following agreement was reached in 1976 between the Governments of the United Republic of Tanzania and Kenya regarding the delimitation of the territorial waters boundary between their two countries.

1. BOUNDARY

Base Lines:

(a) Ras Jimbo beacon - Kisite Island (rock)

(b) Ras Jimbo - Mwamba-wamba beacon

(c) Mwamba-wamba beacon - Fundo Island beacon (rock)

(d) Fundo Island beacon (rock) - Ras Kigomasha lighthouse

(e) Kisite Island (rock) - Mpunguti ya Juu - lighthouse

2. THE DESCRIPTION OF THE BOUNDARY

(a) On the West: The median line between the Ras Jimbo beacon base lines to a point 12 nautical miles from Ras Jimbo upto a point hereinafter referred to as 'A', located at 4 49' 56" and 39 20' 58" E;

(b) On the East: The median line derived by the Intersection of two arcs each being 12 nautical miles drawn from Mpunguti ya Juu lighthouse and Ras Kigomasha lighthouse respectively hereinafter referred to as point 'B' located at 4 53' 31" S and 39 28' 40" E and point C, located at 4 40' 52" S and 39 36' 18" E;

(c) On the South: An arc with the centre as the Northern Intersection of arcs with radii 6 nautical miles from 'A' as described in paragraph 2(a) above and point 'B' which is the Southern Intersection of arcs from Ras Kigomasha lighthouse and Mpunguti ya Juu lighthouse;

(d) The eastward boundary from point C, which is the Northern Intersection of arcs from Ras Kigomasha lighthouse and Mpunguti ya Juu lighthouse as described under paragraph 2(b) above, shall be the latitude extending eastwards to a point where it intersects the outermost limits of territorial water boundary or areas of national jurisdiction of two States;

(e) The marine charts of 1:250,000 describing the co-ordinates of the above points shall form an integral part of this agreement.

3. FISHING AND FISHERIES

in fishing for subsistence be permitted to fish within 12 nautical miles of either side of the territorial sea boundary in accordance with existing regulations;

(b) It was agreed that there be reciprocal recognition of fisheries licences regulations and practices of either State applicable to indigenous fishermen aforesaid fishing within the area specified in paragraph 3(a).

ANNEX IV

LIST OF LEGISLATION REFERRED TO IN THE REPORT

1. Land Ordinance (Cap 113) and Amendment

2. Freehold Title (Conversion) and Government Leases (Cap 523)

3. Town and Country Planning Ordinance (Cap 378) - The Town and Country Planning (Use Classes) Regulations, GN 504 of 1960 and GN 14 of 22/2/80

4. Merchant Shipping Act, 1967 (and 1980 Amendment) - Merchant Shipping Regulations GN 130 of 6/11/81

5. The Fisheries Act, 1970, The Fisheries Regulations 1973 (and 1982 Amendment) and the Fisheries (Explosives, Poisons and Water Pollution) Regulations 1982

6. Petroleum (Exploration and Production) Act, 1980

7. The Wildlife Conservation Act, 1974

8. The Mining Act

9. Tropical Pesticides Research Institute Act, 1979

10. Water Utilization (Control and Regulation) Act, 1974
    - 1981 Amendment Act to 1974 Act.

11. Urban Water Supply Act, 1981

12. Rufiji Basin Development Authority Act, 1975

13. Township Ordinance (Cap 101)
    - Township Rules
    - Township (Building) Rules

14. Research organizations: 1968 NSRC Act 1979, TIRDO Act, Tanzania Livestock Research Act, 1980, TARO Act, Serengeti Wildlife Research Institute Act, Tanzania Forestry Research Act, Tanzania Fisheries Research Institute Act

No. 21 CPPS/UNEP: Sources, levels and effects of marine pollution in the South-East Pacific. (1983) (In Spanish only)

No. 22 Rev. 1. UNEP: Regional Seas Programme in Latin America and Wider Caribbean. (1984)

No. 23 FAO/UNESCO/IOC/WHO/WMO/IAEA/UNEP: Co-ordinated Mediterranean Pollution Monitoring and Research Programme (MED POL) - Phase I: Programme Description. (1983)

No. 24 UNEP: Action Plan for the protection and development of the marine and coastal areas of the East Asian region. (1983)

No. 25 UNEP: Marine pollution. (1983)

No. 26 UNEP: Action Plan for the Caribbean environment programme. (1983)

No. 27 UNEP: Action Plan for the protection and development of the marine environment and coastal areas of the West and Central African region. (1983)

No. 28 UNEP: Long-term programme for pollution monitoring and research in the Mediterranean (MED POL) - Phase II. (1983)

No. 29 SPC/SPEC/ESCAP: Action Plan for managing the natural resources and environment of the South Pacific region. (1983)

No. 30 UNDIESA/UNEP: Ocean energy potential of the West and Central African region. (1983)

No. 31 A. L. DAHL and I. L. BAUMGART: The state of the environment in the South Pacific. (1983)

No. 32 UNEP/ECE/UNIDO/FAO/UNESCO/WHO/IAEA: Pollutants from land-based sources in the Mediterranean. (1984)

No. 33 UNDIESA/UNEP: Onshore impact of offshore oil and natural gas development in the West and Central African region. (1984)

No. 34 UNEP: Action Plan for the protection of the Mediterranean. (1984)

No. 35 UNEP: Action Plan for the protection of the marine environment and the coastal areas of Bahrain, Iran, Iraq, Kuwait, Oman, Qatar, Saudi Arabia and the United Arab Emirates. (1983)

No. 36 UNEP/CEPAL: The state of marine pollution in the Wider Caribbean region. (1984)

No. 37 UNDIESA/UNEP: Environmental management problems in resource utilization and survey of resources in the West and Central African region. (1984)

No. 38 FAO/UNEP: Legal aspects of protecting and managing the marine and coastal environment of the East African region. (1983)

No. 39 IUCN/UNEP: Marine and coastal conservation in the East African region. (1984)

No. 40 SPC/SPEC/ESCAP/UNEP: Radioactivity in the South Pacific. (1984)

No. 41 UNEP: Socio-economic activities that may have an impact on the marine and coastal environment of the East African region. (1984)

No. 42 GESAMP: Principles for developing coastal water quality criteria. (1984)

No. 43 CPPS/UNEP: Contingency plan to combat oil pollution in the South-East Pacific in cases of emergency. (1984)

No. 44 IMO/ROPME/UNEP: Combating oil pollution in the Kuwait Action Plan region. (1984)

No. 45 GESAMP: Thermal discharges in the marine environment. (1984)

No. 46 UNEP: The West and Central African marine environment. (1984)

No. 47 UNEP: Prospects for global ocean pollution monitoring. (1984)

No. 48 SPC/SPEC/ESCAP/UNEP: Hazardous waste storage and disposal in the South Pacific. (1984)

No. 48/Appendices SPC/SPEC/ESCAP/UNEP: Hazardous waste storage and disposal in the South Pacific. (1984)

No. 49 UNEP: Legal aspects of protecting and managing the marine and coastal environment of the East African region: National Reports. (1984)

No. 50 UNEP: Marine and coastal conservation in the East African region: National Reports. (1984)

No. 51 UNEP: Socio-economic activities that may have an impact on the marine and coastal environment of the East African region: National Reports. (1984)