



UNITED NATIONS ENVIRONMENT PROGRAMME

*Public health problems
in the coastal zone
of the East African region*

UNEP Regional Seas Reports and Studies No. 9

Prepared in co-operation with



WORLD HEALTH ORGANIZATION

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PREFACE

The Regional Seas Programme was initiated 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 ten 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 combating 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.

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 development 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 eight States of the region 2/ in order to:

- assess each State's interest in participating in a future regional programme;
- consult with Governments with a view to identifying activities that may usefully be included as part of a comprehensive action plan;
- make a preliminary assessment of the environmental problems in the region, including the problems related to the environmentally sound management of marine and coastal natural resources and activities influencing the quality of the marine and coastal environment;
- collect available scientific data and information pertaining to the development and implementation of the action plan planned for the region; and
- identify national institutions that may participate in implementing an action plan once it is adopted.

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

2/ Comoros, Kenya, Madagascar, Mauritius, Mozambique, Seychelles, Somalia, and United Republic of Tanzania.

(ii)

The findings of the mission were used to prepare the following six sectorial 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.

The six sectorial 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 Series No. 12. UNEP, 1982.

The overview and the six sectorial reports were used as the main working document and information documents for the UNEP Workshop on the Protection and Development 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 (UNEP/WG.77/4). The conference is to be convened by UNEP in early 1984.

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INTRODUCTION

1. This document examines the public health problems in the coastal zone of the East African region. In the countries of this region, the increasing coastal population of residents as well as tourists has led to a heavier pollution load and resultant stress due to land-based pollution such as domestic sewage, industrial wastes, agricultural run-off and river drainage. The first of these is treated more fully in this report whilst the others are dealt with in the following reports pertaining to the mission:

- 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; 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.

2. The scope of the publication comprises:

- review of factors determining the quality of environmental health;
- assessment of domestic waste treatment and disposal policies and practices;
- review of major problems in individual States of the East African Region.

3. The countries covered by the report are, on the mainland, Kenya, Mozambique, Somalia and Tanzania; two mini-states, Comoros and Seychelles; the small island of Mauritius; and Madagascar, an island as big as France, Belgium and The Netherlands put together. The heterogeneous nature of these eight States makes comparisons irrelevant in many respects. The differences in size, economic conditions, cultures, political and legal systems are the main reasons for the diversity of their problems. The general features, oceanography and description of the area involved are fully covered in the concurrent reports of the mission, to which should be added:

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

FACTORS RELEVANT TO ENVIRONMENTAL HEALTH

Water supply services

4. The objective of all the Governments is to provide the total population of the country with an adequate water supply before the end of the decade and in special cases by the end of the century. It is assumed that "potable water supply" in an urban area means piped water supply to each house and indirectly that every citizen has access to sanitary facilities. Areas with a limited water supply have a greater solid content in the waste water; hence the water supply is an important factor in determining the quality of the waste disposed.
5. In the urban areas of the coastal zones about four fifths of the population have access to water supply: approximately two fifths are served by piped water supply through house connections and two fifths by public stand posts (see table 1).
6. In the rural areas only about a third of the population has access to reasonably safe drinking water. The facilities available are through public stand posts and individual wells.
7. The quality of the water supplied in rural areas is very seldom controlled by the authorities concerned. The principal reasons are the shortage of laboratory facilities and qualified personnel and scarcity of transport. In general, the water is bacteriologically suspect.

Epidemiological aspects

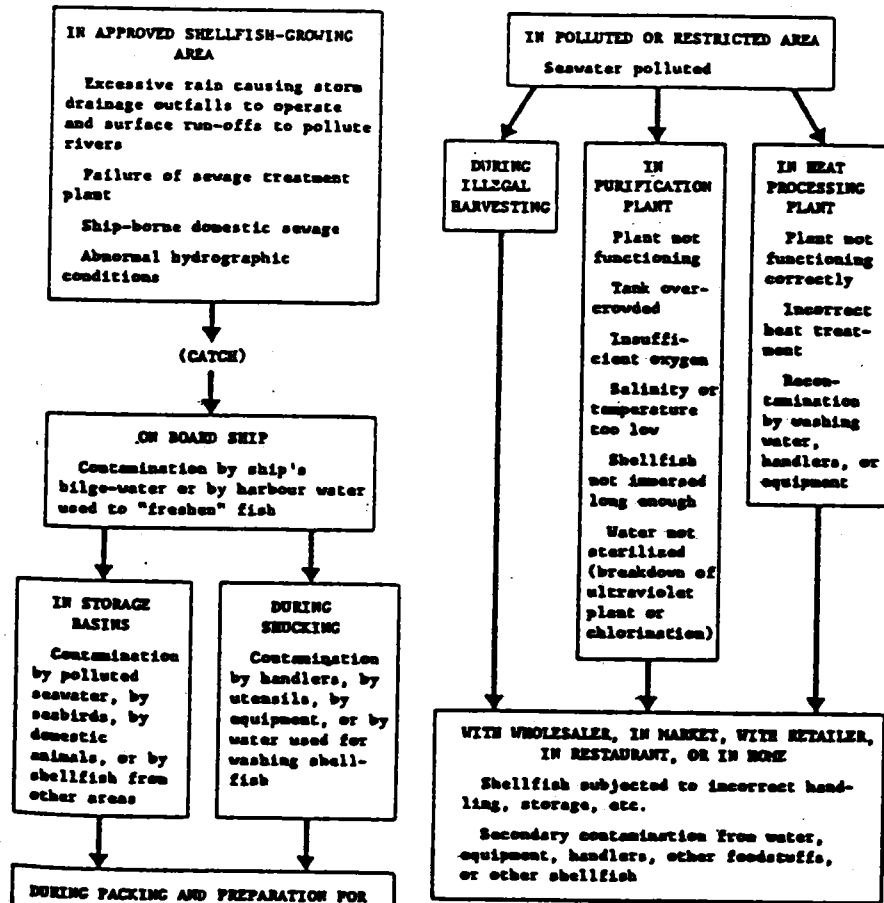
8. The most serious effect of the uncontrolled dumping of domestic wastes on human health is the transmission of diseases by either the consumption of polluted fish or shellfish or by direct bodily contact with pathogenic organisms in sea-water or on the beaches (see figure). Bathing in sewage-polluted sea-water can result in such ailments as eye, ear, nose and throat infections. Where faecal or bacterial contamination is also present, it can lead to more diseases especially when ingested. This is partly due to the ability of filter-feeding organisms such as oysters, clams, mussels and scallops to concentrate bacteria, and probably viruses, many times over their levels in the surrounding water.
9. The number of people living in the coastal areas suffering from diseases related to pollution caused by domestic liquid waste and solid waste is uncertain. In most of the countries visited, particularly in the rural areas, laboratory and clinical services are inadequate and in some places do not exist. A large number of cases, some fatal, are reported as unspecified diarrhoeal diseases (see table 2). In most instances, the causes were directly related to contaminated drinking water.
10. In many instances there is no regular laboratory test control of the beaches, rivers or water supply systems. Only when there are clear indications and outbreaks of a disease would such tests be carried out (see table 3). The absence of regular control by the health authorities is due to lack of laboratory facilities, shortage of staff and principally lack of adequate funds for overall regular control.
11. Medical statistics on the morbidity and mortality related to the coastal pollution are poor except for those connected with cholera outbreaks. Vibrio cholerae, the causative agent of cholera is not normally found in the marine environment but exists in sewage from communities where the disease occurs. It is

Table 1 : Community Water Supply - comparison of services (1975 - 1979/80)

Country	Year	URBAN POPULATION SERVED						Rural population with reasonable access to service		TOTAL	
		By house connections		By public standposts		Total urban					
		Number '000	%	Number '000	%	Number '000	%	Number '000	%	Number '000	%
Kenya	1975	920	45	1095	55	2015	100	930	*	*	*
	1980	1775	60	1180	40	2955	100	2100			
Madagascar	1975	47.20	5.72	2.12	0.26	49.32	5.98	*	*	*	*
	1979	54.47	15.0	2.42	0.67	56.89	15.67	*	*	*	*
Mauritius	1975	111	29	250	65	361	94	466	97.5	827	96.5
	1979	121	31	246	62	367	94	487	94	854	94
Mozambique	1975	330	30	220	20	550	50	100	1	650	6
	1980	465	30	465	30	930	60	200	2	1130	9
Seychelles	1975	12.1	57	5.0	23	17.1	80	23.7	65	40.8	71
	1980	18.4	75	2.7	11	21.1	86	33.1	80	54.2	82
Tanzania	1975	264	14	1054	54	1308	68	2416	17	3734	23
	1980	546	25	1274	57	1820	82	4500	28	6320	34

From: The International Drinking Water Supply and Sanitation Decade Directory
World Health Organization (1981)

Figure showing points at which shellfish may become unsatisfactory for human consumption



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