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Environmental pollution along the coast

Mrs Onike D.P. Mrema and Bariki Kwayu

ABSTRACT:

The shores in the vicinity of Dar es Salaam have several usage; including fishing and marine resources utilisation, recreation and tourism. Environmental degradation in this area is therefore dangerous and unaesthetic.

Along the Dar es Salaam coast, sewerage enters the marine environment through the harbour, ocean road (sea outfall), Msimbazi creek and Msasani bay. The main sea outfall discharges untreated waste water, mainly domestic characterised by high BOD, SS and Coliform content.

In order to upgrade the existing pollution an alternative solution may be either to treat the waste water before disposing into the sea or to stop using the beach where pollution is high.

SOURCE OF POLLUTION:

Sea outfalls

Rapid industrial development followed by increase in population and fast expansion of a city like Dar es Salaam brought the need for constructing a sewerage system whereby the untreated wastewater from industries, Institutions, and residential areas is collected and disposed to the sea.

The sewerage system discharges its waste water into the Banda Beach area near the ferry fish market. The outfall discharges domestic sewage collected from the city centre and from Institutions including hospitals. The outfall which is 1.6km from the shore is exposed fully during low tide. The sewage attracts large numbers of free-swimming fish since the discharge provides an ample source of food. A large number of women (about 30 daily) are actively involved in the collection of the cockles, crabs, oysters, flat fish, and bivalves. Some of their harvest is cooked at the shore and sold directly to the beach visitors. These women with their kids were seen stepping or touching effluents especially at the outfalls. This poses a high risk to their health. Several clinical cases have been reported whose causes has been attributed to the contaminated coastal water. Kilama (1978) and Osore (1983) have highlighted the diseases and pathogens associated with uncontrolled disposal of sewage; some examples are hookworms, ascariasis bancroftian, filariasis and schistosomiasis. These diseases are contracted through bathing in polluted water and eating contaminated sea food.

Another source of pollution is the two stormwater outfalls, they also discharge their contents within the beach. The storm sewers also carry sewage from illegal connection points. The stormwater outlets are too short (less than 500m), posing a great health hazard.

The Msimbazi Creek:

The major source of pollution over the Msimbazi river are two textile mills at Gongolamboto which together discharge untreated textile and dye waste directly into the river. Others include an abattoir at Vingunguti, the Tabata solid waste dumping site and other small industries which discharge untreated toxic compounds and chemical waste waters. The river empties its contents along the coast at Selander Bridge. At this point of discharge the area is characterised by having high BOD, low D.O and obnoxious smell, especially during low tide.

Other sources of pollution:

Traces of oil are also found at the beach this problem is more serious at the harbour. However the sources of

this pollution are the ships which pass close to the beach and the Tanzania Petroleum Refinery. A serious oil spillage was encountered in 1981, which caused death and disappearance of mangroves along Kigamboni. Other small industries like Henkel Chemicals E.A. Ltd, discharge their waste directly into the harbour as there is no other facility for disposal.

DIFFICULTIES ENCOUNTERED:

The idea of treating the waste water before disposing it to the sea is still limited since most of the institutions/industries were designed/built without consideration of fixing a treatment plant. As such it is rather difficult for the institution/industry to secure an area for that purpose.

Experience indicates that waste water treatment and disposal, though important from a public health and environmental point of view, is generally given low priority. This negligence has resulted in environmental degradation and negative health impacts to the population.

CONCLUSION

Prevention of pollution to the environment and health hazard must go hand in hand with the provision of efficient, well operated sewage treatment facilities. Necessary measures have to be taken in ensuring that industries/institutions have proper treatment facilities and once installed they must be properly maintained.

References

1 M - Konsult and Haskoning Company (1988)

Solid waste Management and Pollution caused by sewerage system in Dar es Salaam (unpublished report to the Ministry of Water).

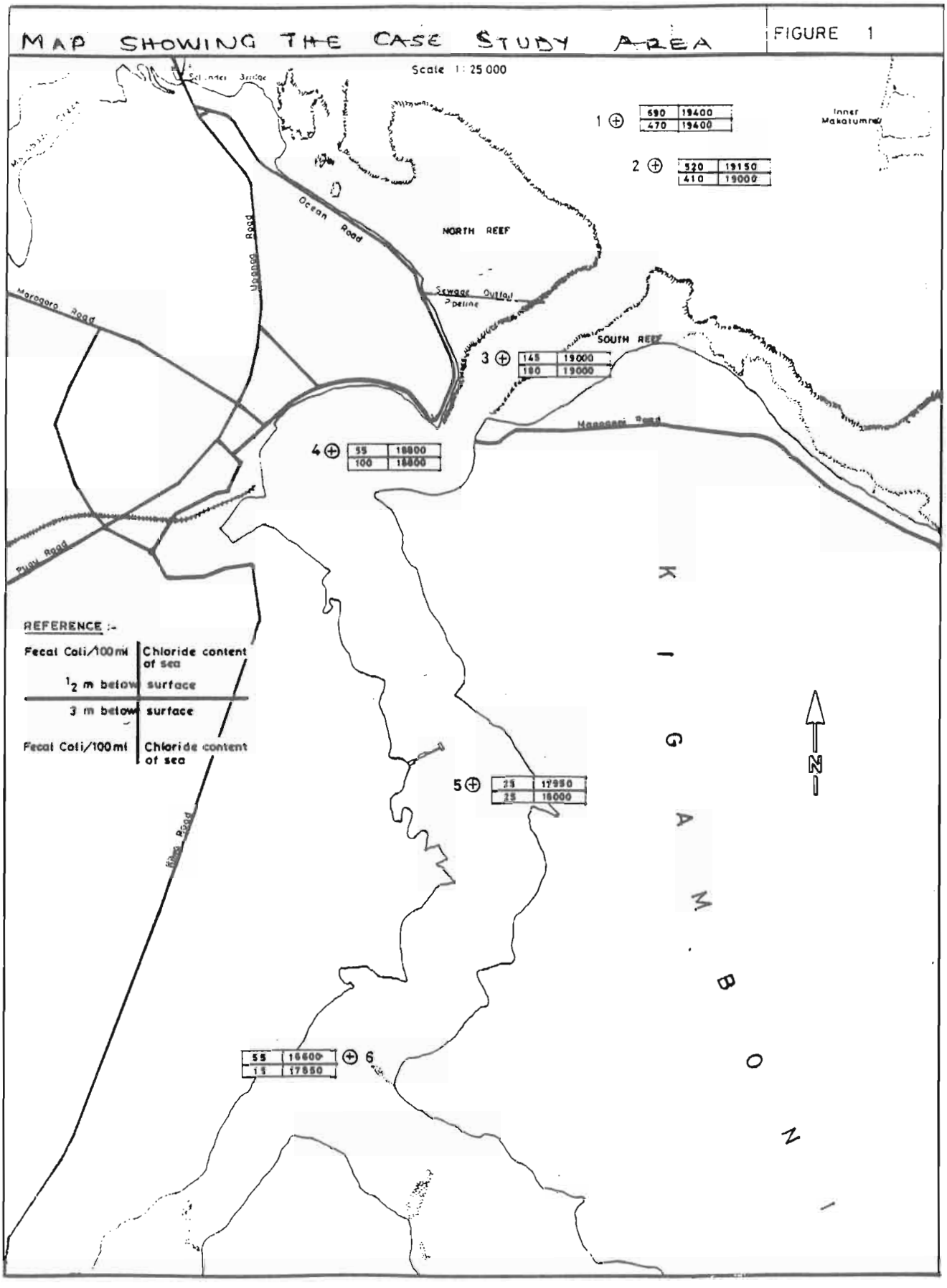
2 Kayombo and Mainoya (1986)

Cockle harvesting on the Dar es Salaam coast (unpublished report)
- University of Dar es Salaam.

3 Shushu R.D. (1989)
Investigation of sea shore water pollution. Unpublished Diploma project. Ardhi Institute Dar es Salaam.

TABLE 12 M-KONSULT AND HASKONING COMPANY RESULTS OBTAINED 1988

SAMPLING SITE	DATE	TEMPERATURE	TIME	REMARKS	DO mg/l	pH	BOD5 mg/l	COD mg/l	FC/ ml	T-Coli/ ml
SEA OUTFALL	6/8/88	27.1	HT	Half away down Sea Outfall	6.3	8.0	7	700	1	3
	10/8/88	28.2	LT	Down stream from Sea Outfall	8.1	8.1	0	821	1	11
	13/9/88	27.4	LT	Close to shore	5.2	8.2	0	1128	300	2200
AT SWIMMING CLUB	6/8/88	27.5	HT	Human excreta along the shore	6.5	8.2	3	365	170	1300
	10/8/88	27.0	LT	Excreta and offal on shore	7.7	8.2	0	417	50	80
	13/9/88	27.4	LT		7.2	8.5	0	1343	1700	3000
	27/9/88	29.0	LT		6.8	8.9	0	1203	7	13
STORMWATER OUTLET No.1	16/8/88	26.5	HT	Outfall filled with Sea water	6.3	8.2	2	673	500	1300
	10/8/88	28.7	LT	Some discharge from Sea Outfall	6.0	7.9	0	438	2300	8000
	13/9/88	27.5	LT	Some discharge from Sea Outfall	5.3	8.4	0	1072	800	2200
RASCHOKIR	16/8/88	26.5	HT		7.2	8.2	3	554	0	3
	10/8/88	27.2	LT		8.5	8.2	0	468	5	11
	13/9/88	27.8	LT		8.2	8.6	0	932	13	13
	27/9/88	32.2	LT		6.4	8.0	0	450	1	2
STORMWATER OUTLET No. 2	16/8/88	16.0	HT	Outfall filled with Sea water	6.7	8.2	0	1007	2	17
	10/8/88	10.0	LT	Some discharge from the Outfall	9.0	8.4	0	847	23	130
	13/9/88	13.0	LT	Some discharge from the Outfall	3.8	8.0	3	1110	1100	5000


MAP SHOWING THE CASE STUDY AREA
FIGURE 1
Scale 1: 25 000
1 690 19400
470 19400
2 520 19150
410 19000
3 145 19000
190 19000
4 55 18800
100 18800
5 25 17950
25 18000
6 55 16600
15 17550
NORTH REEF
SOUTH REEF
Ocean Road
Uganga Road
Sewage Outfall Pipeline
Mangere Road
Mangere Road
Puni Road
Kirk Road
Inner Makaturna
KIGAMBONI
N
REFERENCE :-
Fecal Coli/100ml
Chloride content of sea
½ m below surface
3 m below surface
Fecal Coli/100ml
Chloride content of sea