



WATER, SANITATION, ENVIRONMENT and DEVELOPMENT

Sanitation and solid waste disposal in Malindi



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Introduction

Lack of adequate sanitation and solid waste disposal facilities is one of the major problems facing secondary towns in Kenya. The paper briefly analyses the situation in Malindi town. The data used in this paper is obtained from a preliminary analysis of data from an on going research project on sanitation in Malindi town. The Malindi Township is situated on the Kenyan coast of the Indian Ocean and lies in Malindi division which is in Kilifi District. The town is located about 120 kilometres north of Mombasa. The Municipality covers 334 square kilometres of land and 230 square kilometres of the Indian Ocean. The town of Malindi is characterised by a well developed tourist industry and subsequently a big portion of working migrants from several regions of Kenya contributing to the heterogeneous composition of the local population. The estimated population in 1992 was 57,000 inhabitants (Republic of Kenya 1992: 1-10). The Malindi population is composed of a mosaic of different groups differentiated by ethnicity, language, religion, income level, and occupation. Like in other secondary towns, the Municipality is characterised by a high rate of low income households. According to 1992 estimates, a total of 61 percent of all the households belonged to low-income group while 27 percent belonged to middle-income group. Only 12 percent of all the households were estimated to be in the high-income category. The level of income is one of the major determinants of the location of the settlements. For example, the closer the beach, the better-off is the population. The poorer income groups are found to the west and south-west where the living conditions are very poor. Most of these households work in different sectors. A survey done in 1991 (Gauff, 1991) estimated that 55 percent of the working population is self-employed while 45 percent is employed in the formal sector.

The high rate of migrant labour to the town has resulted in lack of basic services. In addition development of housing and other related services have been affected by different things. One of the major problems is the existing land tenure system in Malindi town. The land tenure system in the Municipality is still characterised by the historical ownership pattern of Arab absentee landlords many of whom still live in the Arab Peninsula. Absenteeism hampers the identification of owners, the survey of plots as well as the collection of land taxes (rates). Land ownership patterns include traditional Arab owners of residential, commercial, agricultural or idle land. European owners (or

seasonal residents on the plot), European owner who runs a hotel or lodge on their plots, and government and municipal land. In addition there are households who reside in Malindi or elsewhere who own a house but not the plot where it is located, paying an annual rent to the landlord or a middleman. At times residents are tenants who are renting both land and house or only land or only the house and others who are simply squatting.

These land ownership patterns hamper development of infrastructure because of inadequate land available to the Municipality and the fact that tenants cannot make decisions on improvement of services because they do not own the plot and cannot decide on whether or not new latrines are to be constructed.

Service provision

Service provision is one of the major challenges to secondary towns and Malindi is no exception. The survey indicated that the town lacked many services and efforts to provide services did not reach many households. One of the major services needed is water. The survey found that although a piped water network exists in Malindi town it is inadequate and many households experienced water shortage. Other households could not afford to connect water to their houses and these bought water from their neighbours. It is worth noting that there is acute water shortage because most of the taps are usually dry and this makes water unnecessarily expensive. Landlords have also dug their own wells however, the water in some of these wells is contaminated and this is a health hazard.

Sanitation

Malindi town is not equipped with a central sewer and most people either use septic tanks or have pit latrines. High income households and the hotels have septic tanks. These tanks are however, at times too small and in poor condition. In general, most of the households use pit latrines. These are mainly situated in the middle and low income housing areas as well as in rural or mixed (urban) areas. There are very few latrines in the high income areas and these are mainly for domestic servants. The low income households in particular use pit latrines which are provided by the landlords. Not all the households have latrines and a total of 24 percent of the households in Malindi did not have any form of sanitation. The remaining 76 percent had some type of sanitation but most of them needed upgrading.

Four types of latrines were found in Malindi town and these included traditional latrines with wooden slabs and wind shelter, improved pit latrines with masoned pits and solid compartment, Ventilated Improved Pit (VIP) latrines and pour flush. Most of the latrines were found in residential areas and only a few were found in the industrial sector and public institutions and in commercial sector. The total number of traditional latrines has been estimated to be roughly 1,590, whereas the improved latrines were roughly 760 (Republic of Kenya, 1992). When industrial and public sector are considered the total number of pit latrines in Malindi is estimated to be 2,470. It was observed that often the traditional latrines do not meet the required hygienic standards. Some of the traditional latrines were also inside the house and smell was a nuisance in most cases.

Septic tanks and latrines are usually emptied but emptying and disposal services are inadequate. There is one official service and 7 private companies dealing with emptying of septic tanks and pit latrines and all these have limited capacity. In addition the services are too expensive for the low income groups. This is a big problem in plots where only tenants live but not the owners. The tendency is to leave the latrines overflowing for some time until the tenants take action by reporting the case to the Municipal Health Department. It is also not unusual to find overflowing septic tanks in both people's homes and hotels. These apart from being a health hazard have very bad smells.

Dumping sites are in two locations and these are situated in abandoned quarries. No environmental protection measures have been taken to avoid possible underground pollution which could come from infiltration of excreta liquid, heavy black oil from the cotton seed processing plant, used oils, grease from garages and service stations and soluble toxic substances not included in solid waste. These sites therefore constituted significant environmental risks. Lack of consideration of environmental problems caused by improper dumping of waste is a big problem in many urban areas in Kenya.

It is recommended that priority should be given to the construction of latrines for about 24 percent of the resident population without any sanitation facilities and mostly belonging to the low-income group. Another 30 percent of the resident population is still using traditional latrines which need an improvement to VIP latrines or even pour-flush latrines. In addition, another 13 percent of improved pit latrines, VIPs or pour-flush latrines need to be upgraded. These figures show that 67 percent of Malindi residents either do not have sanitation facilities or have inadequate sanitation facilities. Households with adequate sanitation only represent one-third of the total urban population in Malindi. This represents a small population with adequate services and given the high rate of growth of this town, lack of sanitation services is likely to bring about many health problems to the residents. This is especially true given the fact that the households lacking these services are in crowded low-income neighbourhoods.

Families have traditionally provided themselves with latrines and do not usually wait for the authorities to provide these services. The main problem is adequate finance to construct better latrines. It is recommended that low income neighbourhoods be given some assistance to construct better latrines and this can be recovered from tenants who complained bitterly about the standard of latrines provided. It is also recommended that a central sewer system be provided for the densely populated areas of town and the hotels. Most of the cost of construction of the sewer can be recovered from the hotels and rich households living near the beaches. The environmental problems caused by dumping of waste from latrines and septic tanks should be assessed and dealt with before it is too late. Better dumping sites should be provided and companies dumping their wastes in these dumping sites should be charged. The Municipality should not wait until it is too late to correct the situation. Households should be encouraged to construct better latrines, using appropriate technology which would reduce the number of times that the latrines have to be emptied. Construction of traditional toilets without lining should be prohibited given the fact that many households are still using water from the wells most of which is said to be contaminated. In addition, the contaminated wells should be identified and use of water from these sources discouraged.

Solid waste disposal

Like in most secondary towns, solid waste collection and disposal is a major problem in Malindi town. The increasing population in the town has added to this problem. For example, in 1991 it was estimated that 36,000 tons of solid waste were produced in Malindi, whereas only 7,300 tons were transported to the dumping sites by the Municipality collection services. Refuse collection is only done by the Municipality who have 5 tractors and two other vehicles. These are inadequate for the amount of garbage produced in the town.

Solid waste is normally stored within one's compound. The refuse is stored in dust bins or drums supplied by the Municipal Council. There is an acute shortage of supply of these containers by the Municipal Council and where such containers are not provided concrete slab containers have been constructed for storing refuse. In some areas refuse is dumped in one corner of the compound awaiting collection. A big portion of the solid waste is not collected but is scattered around the settlements. Many of the bins can be seen overflowing throughout the settlements.

The collection of refuse by the producer is done within the compound. Due to irregular service rendered to the producers by the Municipal Council, efforts are made by producers to find ways of disposing off the refuse. The main methods of disposing off the refuse include burning, composting or dumping of refuse anywhere. At present there is very little recycling and composting being done.

There is only one dumping site managed by the Council. But there is no proper system of dumping, it is done haphazardly, wherever space is found. The dumping site does however not meet the minimum requirements with respect to technical provisions like bottom and lateral sealing. The Municipal Council does not even have one bulldozer at its disposal to compact the dumped wastes and to cover them with soil.

The main problems faced include insufficient and inadequate storage bins, vehicles and management problems. The main constraints in the existing solid waste management is the lack of adequate staff, and equipment. The drums supplied by the Council, if any, became very heavy, once full, and cause a problem when being lifted by refuse collectors. Each vehicle is accompanied by four collectors who often have to empty the drums onto open plastic sheets and then lift these sheets onto the loaders or trailers, making the whole process very slow and losing finer material. No proper maintenance of the vehicle is carried out at the Council yard. For any major repairs the vehicles have to be taken to Mombasa hence causing delays in the operation. The dumping site is becoming a health hazard to the public in the surrounding areas. Smell, smoke from the burning refuse, flies and mosquitoes are now becoming a nuisance.

Conclusions and recommendations

The above discussion shows that Malindi has poorly developed infrastructure system and communication network. Squatting, uncontrolled development of housing settlements impede long term planning and development of sanitation facilities. In addition complex land tenure structure affects decision-making for any new developments.

To deal with the above problems it is recommended that the water quality of wells be investigated and further pollution stopped. Those wells already contaminated should be put out of operation. Public toilets should be inspected, maintained and repaired. The Municipality should impose treatment of the by-product of black oil on a cotton seed oil company at the company's expense. In addition, the Municipality should promote and support private enterprises with respect to cesspit emptying and refuse collection services. They should start introducing standard bins with lid for domestic and commercial refuse storage facilities, purchase a bulldozer for the refuse dumping site to compact waste immediately and to cover them regularly with soil and clean the existing drains.

References

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