Towards a sustainable waste urban management: The Maputo City Council and its urban dwellers

M. G. M. de Araújo and I. M. Raimundo
Department of Geography-Faculty of Arts
Eduardo Mondlane University, Mozambique

Abstract

This paper will discuss various processes used in urban and surrounding areas to manage urban waste in the city of Maputo, the capital of the Republic of Mozambique, Southern Africa. Mozambican scholars have argued that waste management (garbage and sewage disposal) in developing countries it is a matter of development itself and, so has been considered as a matter of social, political and economic development.

In general, waste management in the city of Maputo is significant for this study for three major reasons: i) Waste is both a way of survival and a public health. In this context, two things have to be considered about the waste management toward these two variables (poverty and disease spread that work together) and mismanagement;

ii) Waste management in the city of Maputo interferes in the context of coastal cities with marshy areas and a deficient drainage (drainage of the rain and sewage disposal) and;

iii) The usage of protected areas for building expensive houses for well-off people.

Our argument in this study is the municipality is not a system that can manage properly the city and the continuous population concentration in a single city puts specific problems to level economic, social, and environmental that do become true challenge for the governments and the civil society.
1 Introduction: A panorama on the city of Maputo

The City Council of Maputo is situated on the northern bank of a rivers (Maputo and Incomati) outlet in the Indian Ocean under the bay of its name- The bay of Maputo. It has surface area of 300 Km² and according to the II General Census of Population and Housing 1997 it has 996,000 inhabitants (Instituto Nacional de Estatistica, 1999). It is also, according to Nimpuo et al (1976) constituted by a system of concentric circles, where the nucleus consists of the planned “concrete” city and the periphery of “reed” areas which finally fade out in more and more rural environmental whether the way of living whether the origin of the population. It is in the “reed” area where the great majority of the Maputo population lives, and it is an unplanned area. The planned area is basically built on sound land allowing a natural drainage of rain water and it is this area where the municipality pay more attention in terms of garbage collection.

Town planners and other specialists affirm that the destiny of the world is inter-linked with the destiny of their cities. For best or for worst, the cities sharp our world, and they continue to do that. Also, be old or modern, the cities have affected personally probably more than one can imagine. It is for this reason that its survival is linked with our own survival. Cities act without doubts the great conquest of the contemporary societies. They drive the economic, political and environmental space and because they concentrate the largest number of inhabitants, businesses, different types of services that attract rural population from all “corners” of the world. Almost half of the worlds’ inhabitants live in cities. There do make purchases or at least occasionally enjoy its benefits or the advantages and the comforts that cities do offer. In spite of the differences between old cities and modern ones, they do have some common problems.

Face to this panorama a group of measures and of actions in that translates themselves the implementation of the process of better use of the urban soil, a territorial order, giving better attention to the distribution of the classes of use of the soil should be established and controlled. For Mozambique such priority is necessary face with the explosive population growth in the cities. Between 1980 and 1991 for examples the population of Maputo city has increased 4.5% (Araújo and Raimundo, 2002; Muanamoha, 2000) while between 1991 and 1997 it reduces to 1.7% (Muanamoha, 2000). The urban growth reflect if negatively in the panorama of the environment, with its built patrimony, in the former beautiful avenues and streets of the old colonial cities. Historical buildings or the oldest buildings in down city of Maputo has been totally abandoned even the public gardens. The beautiful gardens were substituted for death plants and waste disposal. There are evidences of the little considerations of the environmental well being of the city. The question that should be put is the following: Who is responsible and how this panorama can be reach?

According to the city planners of Maputo the correct urban occupation of the soils is assumed today as one of the fundamental priorities in the domain of urban administration. In Mozambique, such priority is very visible especially
with population growth in the urban spaces with the resultant relative population reduction in the rural areas. Further, increases in waste disposal is a result of increases in the cities population. This scenery affects the everyday life of the population and consequently their health condition.

Most of the population of the city of Maputo lives in socially unacceptable conditions, which could place the population at risks in a systematic and permanent way, due to diverse causes, such as, unsoundness, critical lacks in infrastructures and basic services. On the other hand, this population doesn’t have enough space to exercise domestic activities. This factor constitutes a great limit for most of the population originating from the rural areas because, in these areas, the population has their form of working with the garbage as well as its destruction.

This paper describes the problem of the waste management in the City Council of Maputo, based on a study carried out in the city of Maputo during 2002, as part of the annual project to study the urban planning in Mozambique. It draws from interviews archival and literature on works already done.

2 Urban solid residues: the case of Maputo city

Maputo as well as main cities of Africa to South to the Sahara is constituted by a space with characteristics similar to the western cities, that it is designated, usually, for urban area and that in Mozambique receives the designation of "concrete" city. This urban nucleus is surrounded by a "different city", been born as a result of the urban and socio-colonial; this second ring constitutes the city suburban, poor, with a density of occupation of the extremely high soil, without appropriate infrastructures and with lack of avenues; it is that, popularly, in Mozambique it is designated by "reed" city. Lastly, a third ring appears, with mixed characteristics between the suburban and the rural, and where still the density of occupation is relatively low, usually designated by periurbano (Araújo, 1999).

The analysis of the situation of the urban solid residues in Maputo will only be able to be understood tends in consideration these three different urban spaces of the city: the urban; the suburban; the periurbano.

2.1 types of solid residues in the city of Maputo

As in any city, Maputo produces a variety of solid residues, from domestic to industrial and hospital waste. The domestic is produced equally in the three spaces of the city already considered, but the per capita production is higher in the urban that in the suburban and periurbano, because it is in that the most consuming population lives (Direcção do Serviços Urbanos, 2000).

In the “concrete” city the production of commercial and other residues, overcomes the production of domestic garbage. To the opposite, the suburban city and the periurbana it is characterised by a larger relative weight of production of garbage originating from domestic residues, of public cleaning and of dumps.
The type of solid residues produced in each one of three areas of the city of Maputo are a direct reflection of the situation of the socio-economic situation of the population of the city. This is very evident in the waste disposal areas in the city. While in the suburban areas and periurban areas the residues didn't degrade are still little frequent, already in the urban area they constitute a considerable weight.

However, it is not very easy, at level of the city, to distinguish the different types of solid residues, because the waste is accumulated without any separation. This turns the situation much more problematic.

According to the data from the city Council of Maputo, Direcção dos Serviços Urbanos (2000) and of the Ministério para a Coordenação da Ação Ambiental (2001), the daily production of urban solid residues passed form 200ton/day in 1997, to 220ton/day in 2000. However, these values don't include the enormous amounts of garbage produced and accumulated in several parts of the spaces suburban and periurban, as well as the garbage that the population of these areas destroys for the system or those do they burn.

2.2 The spatial location of the waste disposal

The city Council of Maputo divided the city in eight removal areas and eighteen of sweeping noticing that all of the removal areas are located in the “concrete” city. This means that, in terms of programmed and organised removal of solid residues on the part of the responsible public entity for such service, just a small part of the city is considered, being the remaining to the flavour of the residents' initiatives or of the proliferation of the garbage on the whole side.

But in spite of the urban area to be the only that it is officially divided in areas of removal of solid residues, it is in these areas that the largest amount of focuses of garbage accumulation is observed. In a study accomplished in 2001 by the Department of Geography of the Eduardo Mondlane University, it was possible to identify about 70 of these focuses, located along some of the main avenues. They appear because the removal that should be done regularly doesn't happen for very long periods. In spite of removal programmed not exist, the residents use owned strategies to eliminate the garbage such as burying or burning. What is happens, therefore, is that the suburban area, due the great density of population, and for not having defined removal areas, no longer it has space to accumulate more garbage and this is dispersed a little on the whole side, getting confused with the precarious road axes, with the back yards of the houses and the few spaces among these. An organised way of garbage collection doesn't exist here. Although in the past during 80s'people used to be organised in a weekly volunteer work day. In the neighbourhood's periurbanos, still with an occupation density relatively low, the situation doesn't come so dramatic, because there is still a lot of space to bury or to burn the solid residues.
2.3 Collect and treatment of the solid residues

One of the serious problems that the city of Maputo faces is the administration of the solid garbage. In all of the “corner” of the city even those considered noble where the population of more ownership lives come with garbage for disposal. The city is served as an embankment in Hulene, that is located about 10 km away from the down town of the City Council of Maputo. Garbage cans exist close to the ditches that seem to be one of the largest sources of solid materials in the stuffing of certain parts of the ditch.

In the “concrete” city the domestic garbage is deposited in containers put at previous defined places, in agreement with the removal areas. What has been happened, however that the removal of this garbage, for the service of the city Council, is not done daily. In the neighbourhood where the linked elite lives to the power and great part of the foreign population (neighbourhood Summershild), the regularity of it collects is of 3 times a week, while in suburbs neighbourhood the garbage collection it is done just 1 time a week. This does with that the containers don’t have capacity and a part of this the waste is dispersed in the area. In the suburban neighbourhoods it collects is not done or, if it is it, that happens once or twice a year just, it is what happens in neighbourhoods as Xipamanine and Malanga. This annual collect or half-yearly it is destined, fundamentally, to collect the solid residues produced by markets or heap along the main road axes.

Although a control of the amounts of garbage deposited doesn’t exist, the Ministry for the Co-ordination of the Environmental Affairs considers that 68% of this are organic, 25% constituted by glasses and several metals and 7% by plastics. But here coming chemical residues of the products were also deposited spilled by the ship Katina P in 1992 (Araújo, 1999; Raimundo, 1994).

3 Drainage system of superficial water: The city of Maputo

The city of Maputo locates in quotas that vary from negative levels to the quote superiors relatively at the maximum level of the tides, making possible, in some cases, the drainage direct for the sea (dos Muchangos, 1985). The topographical structure favours flooding in rainy seasons. Great areas of the city such as the neighbourhoods suburbs, stay for a long time flooded because of the existence in certain areas drainage ditches, which are not attain to.

A study about technical evaluation of the works of the projects of rain and residual drainage in Maputo in 1989 indicated the existence of irregular preventive maintenance namely in the structural part of the ditch the cleaning of the gutters, unblocked of the tubes that they are linked to the system collector and the substitution of the gutters. Because this work is not done means that the sewerage system is not functional. The lack of linked maintenance the bad use on the part of the population that makes the spilling direct of the solid garbage conditions that the system has not been working properly (Hordijk et all, 1989).

The net of drainage of the residual waters and of the domestic discharges built in 1949 and having benefited of enlargement and of
improvement between 1982 and 1989, it doesn't include the suburban areas. In the suburbs where the most of people lives in hurdle houses, wood and zinc the population it is served by the so called “latrines” without sewers. In some suburbs, the residual waters are thrown directly to the bay affecting this way the quality of the beach (dos Muchangos, 1985; Raimundo, 1994). Meaning that a small part of the cement city is that one find served by septic sewage, that it drives for dikes and ditches the waters exits of domestic use. On the other hand, the inefficiency in the collection of the garbage and the bad state of the highways does with that the administration of the city is more and more difficult. As it refers the foregoing report, the rain drainage is influenced by the situation of the collects of the garbage and for the quality of the plan of the highways while the drainage of residual waters is influenced for the collects of the garbage, regular provisioning of water and domestic sanitary facilities.

4 Attitudes of Maputo city dwellers

According to the data from the statistics indicates that most of the population that lives in suburbs are from the rural area. Traditions of the field were messy. It is life way in the rural areas to use to burns of the garbage, because they don't have enough space for the effect, today in the cities they don't make it for space necessary, because do they build and they live in quite reduced spaces for such high number of people in a same family attaché. The city dwellers spill the garbage out of the receivers, in the streets, in the ground or still in drainage ditches. Plus than the respect lack exists the ignorance of the system of the garbage receivers' use allied the inadequacy or even the lack of the same ones.

The attitudes of the city dwellers are in certain measure conditioned by the lack of familiarisation with the introduced technological innovations. For instance, for some people the garbage containers are of metal or of plastic is more useful home than to deposit the garbage. On the other hand, inside of them something of usefulness can be found for the great majority of the poor population that lives in the city.

Conflicts exist between the city dwellers and the municipal organs that it shows in the responsibility on the administration. Who should make the cleaning of the city? While the city dwellers spill garbage, they don't treat their garbage and they still accuse the municipal organs for these, for the City Council make responsible the municipal district for the dirtiness of the city. For besides the contradicitions among interests of the city dwellers, and between these and the public interests the difficulties of conception in better a way of administration of the garbage appear. For some people interviewed in the neighbourhood of Malanga are unanimous when blaming the attitudes of the city dwellers but without leaving of blaming the municipal district through their services of less salubrious parts of town. They increase although the solution doesn't depend on the laws, but of the change of attitudes of the city dwellers and for such, an education work becomes urgent. It is necessary of the part of the City Council the more garbage receivers' placement from to proximity of the schools, markets,
bus-stop for besides the already mentioned great population agglomerates namely the markets.

5 Impacts on the public health

The increase of the poverty in the cities as it has been referred by some specialists in anything help the administration of the garbage because we see: if on one side, some people do their middle of life of the garbage as one can see through a significant number of people that do they seek in the garbage deposits something that can be taken advantage for other, another number it also exists significant of those that for space lack to build or because they are fled people of the war or because they don't have money to buy the earth in spite of the earth not to be sold, they build in such inappropriate places as along the drainage ditches or in slopes. They also exist, those that occupy old highways become pregnant for the circulation of highways reducing this way the size of the streets passing from 18m to simple paths. For instance, the neighbourhood of Malanga developed in its breast a hurdle neighbourhood and of can in slopes no properly protected against the erosion. This neighbourhood received during the 90s’ a high number of moved from war (Muanamoha, 2002, Araújo, 1999). Being like this, this people don't tend more space to build went occupying avenues and paths that reduced road of circulation of the rain waters and, until, of the residual waters. In consequence, they were formed puddles that constitute focuses of growth of mosquitoes. On the other hand, the not existence of a drainage system does with that Malanga is of easy flooding.

The great accumulations of garbage no collected and no destroyed is to do to increase the population of mice (Noticias, 2003/03/22) what puts in danger the life of the town population. Cases of such environmental diseases as the cholera, meningitis, malaria, conjunctivitis tends to increase as a consequence of the deficient system of it collects and of treatment of the garbage.

6 Conclusion

Along the decades of 1980 and 1990 the situation of sanitation of the city of Maputo deteriorated becoming marked by a crescent increase of the population at the same time in that the system of it collects and of destruction of the garbage it went being shown less and less operational. This fact is demonstrated by the progressive deterioration of the equipment and infrastructures of sanitation, reduction of the transport vehicles as well as of the increase of the high apathy degree of laissez-faire-laissez-passer of the authorities that generate the municipal district wants still of the city dwellers. In spite of the injection of the high sums in money for the construction of the drainage ditch for Kingdom of Netherlands as well as efforts tenuous of it collects and of destruction of the garbage inside of the municipal district is verified that, the attitude of the city dwellers is that in anything improves the system of treatment of the garbage. For everything this, the city of Maputo is vulnerable to diseases of environmental kind namely the cholera, malaria, meningitis and conjunctivitis, etc. More than
the bad administration of the garbage the attitude of the city dwellers in relation to the garbage constitutes the aspect that more it hinders the correct administration of the city of Maputo.

In spite of the "cement" city to possess a relative functional system of it collects of garbage as well as of a relative cleaning the diseases when the diseases emerge reach the inhabitants of the luxurious areas even particularly the malaria. So that in the city of Maputo the garbage is not just of the population that lives in outlying areas is also of the ones that live in the city of the "cement". And the administration is of the responsibility of all of the city dwellers. One in the ways informed of the work of the services of urban waste management a local administration of garbage and of the residual waters on the part of the communities would be one of the viable alternatives for form to guarantee a cleaner city and with less diseases.

References