



Globalization, Urbanization and Municipal Solid Waste Management in Africa

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Introduction

Globalization, which according to Horst *et al.* (2001), implies a strong cultural, technological and especially economic interconnection between people and countries, has been widely promoted as a process, which will improve the well being of both the developed and developing worlds. For the developing world in particular, globalization is seen as an economic transformation, a breakthrough to poverty alleviation, and inflation reduction thus expected to help narrow the gap between the two worlds as well as between and within individual nations. It is rightfully argued that globalization brings opportunities for many cities, especially those that can be key centres for production, distribution and services for liberalizing economies. However, increasing evidence suggests that globalization is also creating an increasingly unequal world in terms of distribution of incomes, assets and economic power. While some few countries and their cities are incorporated into it, others are bypassed or excluded. Some are incorporated but at huge social costs.

Globalization has raised some troubling concerns for the developing world, including Africa. One such concern is its impact on urbanization and the ramifications that go with it. Cities are traditionally engines of social modernization and economic growth and at the same time the theatres in which globalization stages its actions. For Africa this has meant fueling the already unprecedented urban growth phenomenon and increasing the challenges that go with it. One key challenge is the management of municipal solid waste.

Globalization has been identified as playing a negative role in solid waste management in African cities. Impacts include the transfer of globalized or internationalized waste management methods and ideologies together with an increased volume and variety of waste, resulting from increased flows of goods and services, and changed life style and consumption patterns; conflicting involvement of multi-national companies with local initiative groups, city and national government in waste management matters and other issues which directly or indirectly affect the waste sector.

The paper attempts to examine how globalization and increasing urbanization have impacted on the management of municipal solid waste sector in Africa and more particularly in Cameroon using the cases of Bamenda and Yaounde cities. After defining globalization and situating Africa in the global scene, the urbanization process is reviewed as the theatre of globalization. The globalized African cities and waste management are then examined, trailing the stages of waste management. In conclusion, the paper suggests some solutions to current waste management problems.

2. Globalization

2.1 What it is and how Africa got into it.

Globalization lacks a precise definition. It is a big idea that captures everything from cultural fusion to global financial markets, from international crime syndicates to the



Internet. Globalization is seen as a process of geographical realignment of networks of production and consumption and sites of power (Beall 2002:42).

While followers of the neo-liberal school of thought suggest that the concept is new, others, especially the radicals, disagree. Examining globalization in Africa in particular, one author states: 'though the word globalization is new the process has been going on for centuries' (Mazuri 2001:1). He points out that the expansion of religion; the rise of empires, the triumph of technology and internationalization of the economy has been the engines of change. Nevertheless, many would agree that the scope, speed, and spatial reach of modern globalization processes are unprecedented and require an active reconfiguration of the international institutions of governance (Beall 2002). Mazuri (2001) identifies two major characteristics of the present form of globalization, namely the information superhighway through the computer and the Internet and the economic superhighway through global capitalism, transnational corporations and international trade. Africa's entry to and enmeshment in globalization is well summarized by the following statement:

Over the past millennium, Africa's people and cultures have been subjected to dramatic external interventions and influences enmeshing them firmly with the world system. The successive conquests, colonization and associated cultural imperialism of Arab and European, Islam and Christianity, the hemorrhaging of literally millions of Africans constituted by the slave trade, and more recently the rapid modernization and spread of capitalist consumerism have all transformed and internationalized cultures, conceptualizations, and commodities (Simon 1997 p.1).

2.2 How it operates.

The key principle behind globalization is 'liberalization' of the national economy, culture, and currency. It starts with the premise that for development to take place, privatization, deregulation, downsizing of government and reducing the role of city and national governments must be guaranteed. This process leads to international integration of production, trade and culture. The key manifestation is in the economic sector exemplified by trade – where international corporate bodies (multi-national or transnational companies) play a leading role. Power shifts from city and national governments to these corporations. Governments' role is reduced to opening the frontiers for free flow of goods and services, liberalizing and privatizing development (IIED 2002). Other attributes of globalization include a growing network of sites for investment, trade, and financial transactions, cross border affiliates and Foreign Direct Investment (FDI). FDI is expected to be a key element for economic growth by providing much-needed capital, and access to technology, know-how and international markets (Simon 1997). Nevertheless, a World Investment Report cited at the first International Chamber of Commerce (ICC) regional meeting in Africa at Abuja, Nigeria remarks that; the flow of FDI to Africa in 1999 increased from \$8 billion to 10 billions. However, the same source notes, such seen in perspective, multinationals investments in Africa represented only 1.2 percent of the FDI flow and just 5% of total FDI into developing countries. Further the report notes, 70% of FDI into Africa was concentrated in five countries: Angola, Egypt, Nigeria, South Africa and Morocco (Kassar 2000).



The international organization which co-ordinates and facilitates free trade is the World Trade Organization (WTO). It functions in close collaboration with the International Monetary Fund (IMF) and the World Bank. While the IMF promotes international monetary supervision, exchange arrangements, currency stabilization and financial assistance; the World Bank, directs its attention today toward poverty reduction, governance, the environment, development assistance and social issues. The three organizations are inextricably linked together; however the backbone of the whole arrangement is the industrialized nations of the north, the engine being North America, Europe and Japan.

There are increasing claims and counter-claims regarding the outcomes of globalization. Fierce attacks on globalization and its driving forces are commonplace in the developed and developing nations alike. Failing WTO meetings is becoming a common occurrence. Anti-globalization activists demonstrate against international trade-related conferences and meetings while academics also point an accusing finger at global moves on business. While the globalization advocates would press the point that liberalization of the economy, reduction of government's role and a free market will bring about economic growth and benefits for all, many think that the reality is different. Critics argue that multinational companies are concentrating wealth and power at an alarming rate with the winners being the rich countries and the losers the poor in the developing world (Corpwatch 1999).

Areas that find themselves in the backwaters or peripheral of globalization are expected to gain from 'trickle down' effects or aid policies. Experience has revealed that these have rarely happened. There is always a reason not to give the promised aid. (Friesecke 1999) claims that after the Cold War in 1990 and 1991, no dollar more, was made available to Africa in its development by Western Nations, instead the IMF-World Bank Structural Adjustment was brutally put in place. The author further blames the programme for causing some of the wars in Africa. The turn of the century saw a decline in the world economy and consequently reduced aid to developing countries, including Africa. The aftermath of the terrorist attack in the US on September 11, 2001 and the subsequent 'war on terror' appear to have preoccupied the powers that would have given aid to the developing countries, including Africa (World Markets 2002). All these helped kept Africa away from the expected goals of globalization. Castel (1998) quoted in Beall (2002:43) summarizes it thus:

'Globalization proceeds selectively, including and excluding segments of economies and societies in and out of the net work of information, wealth and power that characterize the new dominant system.'

While globalization, like urbanization brings opportunities as well as problems both however are clearly manifested in cities.

3. Urbanization and globalization in Africa

3.1 Origins and development of urbanization and globalization of Africa



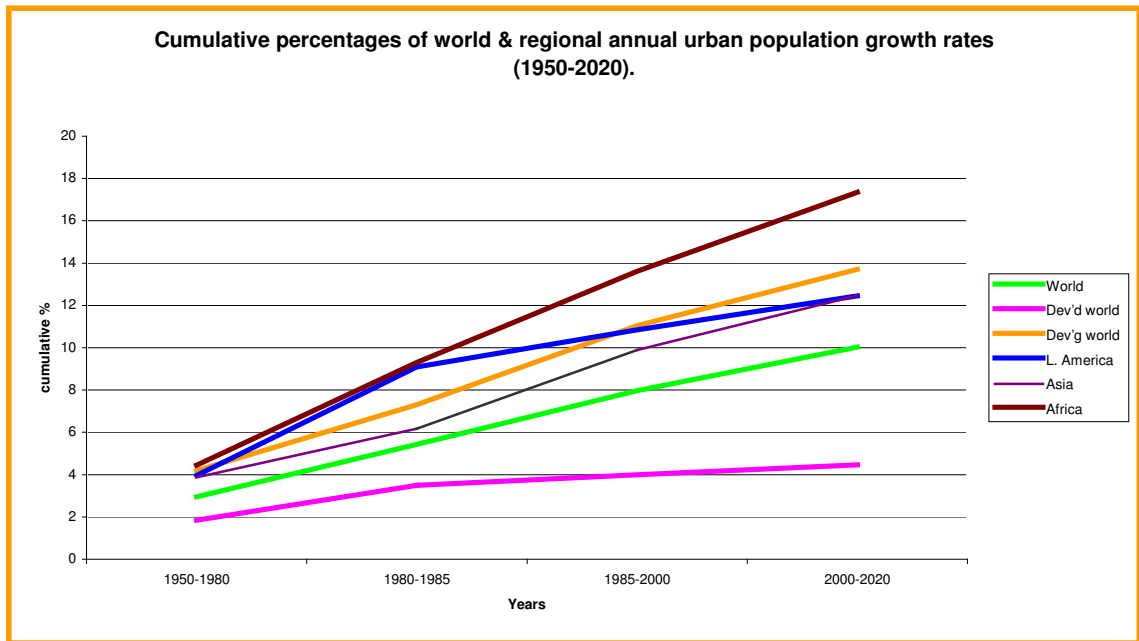
It would be erroneous to attribute the current trends in urbanization in Africa and the rest of the developing world solely to the relatively recent globalization process. However, the initiation and development of towns and cities in these parts of the world have emerged from similar processes of gradual incorporation of these economies into the world economic system. African urban history starts with the introduction of foreign religions (Christianity and Islam), slave trade, colonialism, and neo-colonialism. The last two could be tied to dependency and neo dependency respectively (Achankeng 1995). All these actors chose certain favoured sites for the activities such as mission or mosque centers, slave trading posts, ports, trade and commercial centres, administrative head quarters, processing and manufacturing points, military posts, centers for collection or extraction of raw materials etc. These favoured centres gained from their initial advantage and later from economies of scale to become the focal points of development for themselves, their region, and country. The centres (now urban) also linked their country to the larger world economy. In many countries such major centres (now large cities) were only one or two, leading the country in a primate or bi-primate system of urban development. In 1999 half the total urban population lived in the single largest cities of 16 African countries with conditions in these cities worsening in the last decades (Harsch 2001:22). Although available urban data sources are at variance, today the largest 'million cities' in Africa include: Cairo (14.5m), Lagos (8.0m), Kinshasa (6.3m), Addis Ababa (4.0m), Alexandria (3.8m), Casablanca (3.6), Antananarivo, (3.6m) Abidjan (3.4m), Arusha (3.1m) and Khartoum (3m). (Dietz *et al.* 2001:25); (World Wide Cities 2003:24).

The process of globalization has reinforced the problems of rapid urbanization in Africa and other areas of the developing world. Few cities remain untouched by the global economy or by the products or operations of the transnational corporations that have such large role within it (IIED 2002):

“..the global economic system takes place in a growing net work of global cities and cities that might best be described as having global cities functions. ..it has contributed to a repositioning of cities both nationally and globally” (Sassen, 2002:14).

According to recent sources, Africa is 38 percent urban, making the region the least urbanized in the world; however, it is catching up fast with the world's most rapid urban growth rate of nearly 4 percent per annum (United Nations Population Division 2002:26); (Hardoy *et al.* 2001:28)

Figure 1: Cumulative Percentages of World and Regional Annual Urban Population Growth Rates (1950-2020)



**Source: Compiled and calculated by the author from:
WCED 1987; Hardoy et al., 2001; UN Population Division 2002.**

These rates are predicted by the same sources to persist for the next 15 years bringing Africa's share of the world's urban population to 17 percent by the year 2015. The sources also note that there are now 43 cities with populations of more than one million people. The figure is expected to rise to 70 by the year 2015. The cumulative percentages of world and regional annual urban population growth rates shown in Figure 1 above further illustrate the strong urbanization position for Africa in the world system.

There are sub-regional and national variations in these urbanization trends. North African sub-region is most urbanized and has an average urban population of 54 percent. The other sub-regions are as follows: West Africa (40 percent), Southern Africa (39 percent), Central Africa (36 percent), Western Indian Ocean Islands (36 percent), and East Africa, the least, (23 percent). Figure 2 also gives the urbanization levels (in percentages) of individual countries in Africa. Worth noting are the high urbanization rates in Djibouti, Western Sahara, Gabon and Libya. These states have relatively small areas and few cities. Low rates are associated with mostly poor landlocked countries such as Uganda, Ethiopia and Burkina Faso. This is partly due to their exclusiveness from global forces.



**Figure 2: Levels of Urbanization in Africa (2002)
(Rates in Percentages)**



Source: <http://www.grida.no/geo3/english>

The forces, behind this unprecedented urban growth in Africa, other than the ones already give above, are many. However, many authors have identified the following: rural-urban migrations, natural population increase, engulfing of peripheral rural settlements by urban expansion and in some cases, conflicts. The push factors from rural areas have been declining agricultural productivity or low prices, lack of employment opportunities, basic physical and social infrastructure. On the other hand, the expectations of better employment opportunities and better life in the cities account for the attractiveness that cities offer (Domenach-Chich 2000; Harsch 2001);



UNEP, 2003; (United Nations Population Division 2002). However, poverty has become widespread in most of cities-another contradiction of globalization. And as UNEP, (2003: 2) rightly notes, “Key environmental issues in urban Africa are related to the provision of services for waste, water and sanitation, and urban air population”

3.2 Globalization on Africa’s urbanization

According to Rakodi (1997), and de Haan (2000), global forces have impacted upon development in Africa notably globalization and urbanization. They identify both phenomena for reinforcing the importance of cities and economies of scale through more trade, financial liberalization, labour markets, which they claim will become more competitive, selective and flexible. Many authors including Medina (1999) and Harsch (2001), have observed that the following are obvious outcomes of globalization in cities of the developing world including Africa:

- Increased incomes leading to changes in life style and consumption patterns
- High prices and profit levels in internationalized sectors, making it difficult for other sectors to compete for space and investment
- New investment causing eviction of the poor from central positions usually preferred by multinationals companies
- Privatisation of basic amenities (water, electricity and waste management) leading to price increases which further encourage informal methods of solving the problems by the poor.
- Increase in inequality and poverty
- Increase in waste generation: quantity and variety
- Acceleration of urban population growth and increase in spontaneous settlements leading to increased informal activities
- Strain on municipal services to deal with the boom, poverty and informalization
- Policy and strategy changes or adjustments to deal with the new situations
- Additional waste not followed with immediate adjustment strategies to remove it would lead to environmental deterioration and health hazards (McMicheal 2000).

It has also been observed that globalization reinforces urban primacy thereby increasing the sheer scale of urban growth necessitating resource acquisition (Satterthwaite 1997). Marchand (2002:1) also draws attention to some salient behaviours of multinational cooperation that usually have directly or indirectly devastating effects on both working conditions and urban environment. He notes that the international scope of their activities guarantees them immunity. Moreover, he remarks, they are neither subjected to any local/national control or regulation nor accountable to anyone except their shareholders.

4. Globalized African cities and solid waste management

4.1 Municipal solid waste management (MSWM) in Cameroon and Africa.

Municipal solid waste management constitutes one of the most crucial health and environmental problems facing governments of African cities. This is because even though these cities are using 20-50 percent of their budget in solid waste management, only 20-80 percent of the waste is collected. The uncollected or illegally dumped wastes constitute a disaster for human health and the environmental degradation. Not only the

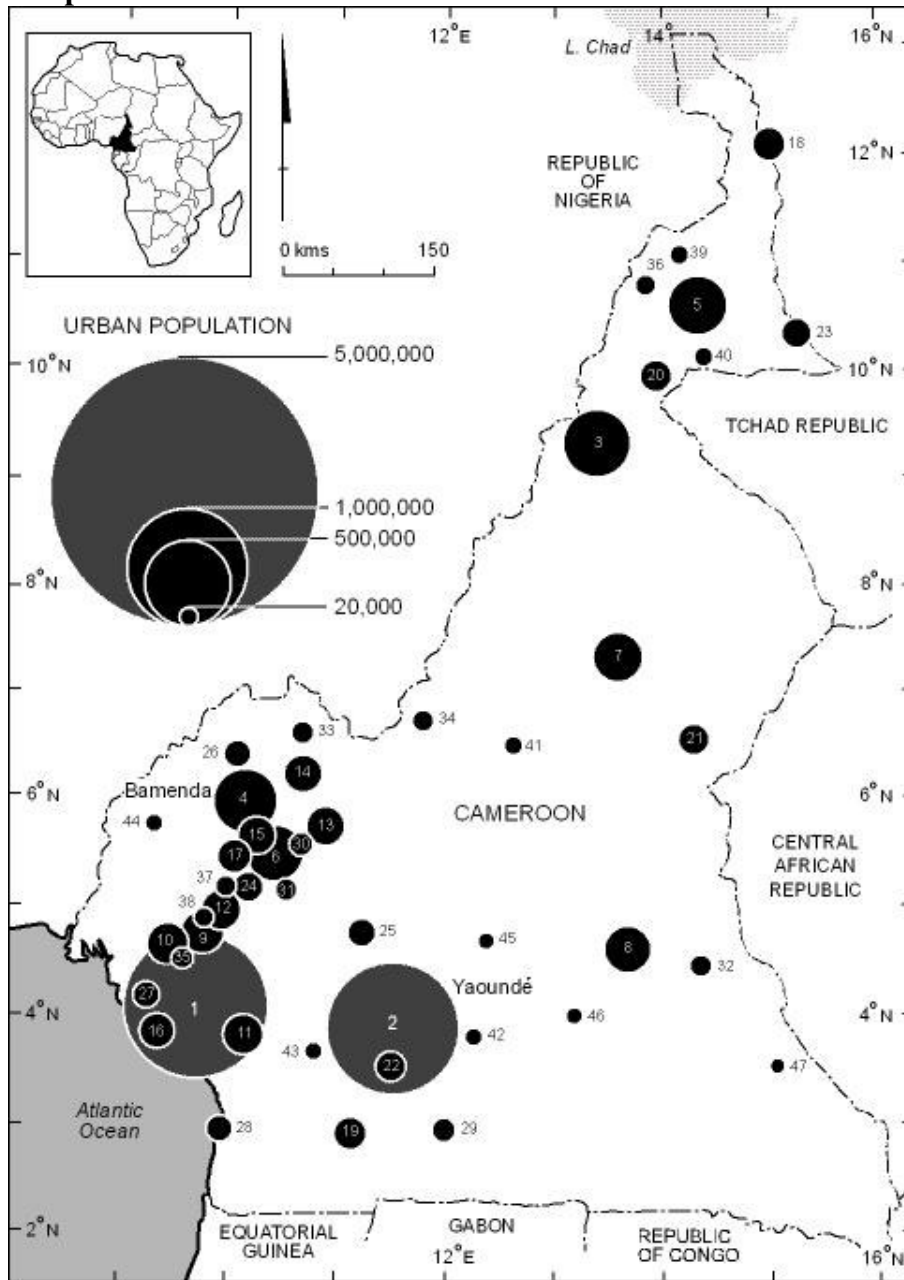


are quantities increasing but also the variety, both a consequence of increasing urbanization, incomes, and changing consumption habits fuelled by globalization. This scenario places the already-desperate urban councils in a difficult situation especially as they have to develop new strategies to deal with increasing volumes as well as strange varieties of wastes.

This section makes an over views of Africa's municipal solid waste management with case studies taken from Bamenda and Yaounde cities, Cameroon. Bamenda with an estimated population of 300 000 is one the fastest-growing provincial headquarters located in the North west of the country. Yaounde is the national capital and has an estimated population of 1 2 million it. (Also see figure 3).



Figure 3: Map of Cameroon: Location and its Towns & Cities



Source: Made from DSCN (2000) & Cameroon Atlas (1985)

4.2 MSW generation.

Solid waste generation, as one would expect, varies between countries, cities, and parts of cities in Africa. Reliable data is hard to come by and cities' economic and political conditions are quite dynamic over time. Insurgence of war, economic crises or booms, political strife etc can have immediate and profound changes on waste generation and management. Global forces including multinational companies are sometimes, but not always, behind these national upheavals Friesecke (1999:5) illustrates this thus:



Today's wars in Africa are, first of all caused by decades of economic devastation through the IMF-World Bank policies of brutal Structural Adjustment Programs. This policy meant that debt payment to international creditors come first, and the people last-if at all.

The war goes on, but the fighting has no effect on the extraction of oil or diamond for global markets, which is truly another 'triumph for the free market and globalization'. In the mean time there is no hope for the population, who continue to live in ever-worsening poverty" Also see (TOMPAINÉ 2002)

These situations can cause abrupt stop of waste management, reduce generation or completely stop removal. For example, in Mogadishu, Somali huge heaps of garbage accumulated over the city over ten years of civil and war (Barise 2001). Barise (200) explains that soldiers turned this problem into an opportunity to get money as they interrupted clean-up operations demanding payment for allowing refuse to be removed. These interruptions may also explain why some cities such as Kinshasa register zero collection of waste as seen in Table 1 below.

Nevertheless generation rates for the continent's major cities are estimated to range from 0.3-1.4 kg per capita per day (See table 1). This gives an average of 0.78 compared to an average of 1.22 kg per capita for developed countries (Beukering *et al.* 1999:9). Extreme cases may exist in both situations. Field experiments show that the pre capita per day generation for Yaounde and Bamenda, Cameroon are 0.8 and 0.5 respectively.

Table 1: Per capita solid waste generation and households with garbage collection in selected African cities with their population estimates in millions#(2000)



Country	City Name	*Per capita SW generation kg/day	+Households with garbage collection (%)	Population > 0.5 million
Benin	Porto Novo	0.5	25	0.6
Burkina Faso	Ouagadougou	0.7	40	1.6
Burundi	Bujumbura	1.4	41	-
Cameroon	Douala	0.7	60	1.1
	Yaounde	0.8	44	1.0
Congo. DR	Kinshasa	1.2	0	6.3
Congo Rep.	Brazzaville	0.6	72	0.9
Cote d'Ivoire	Abidjan	1.0	70	3.4
Egypt	Cairo	0.5	65	14.5
Gambia, The	Banjul	0.3	35	0.5
Ghana	Accra	0.4	60	1.7
Guinea	Conakry	0.7	50	1.3
Mauritania	Nouakchott	0.9	15	0.6
Morocco	Rabat	0.6	90	1.6
Namibia	Windhoek	0.7	93	-
Niger	Niamey	1.0	25	0.5
Nigeria	Ibadan	1.1	40	2.0
	Lagos	0.3	8	8.0
Senegal	Dakar	0.7	36	2.3
Tanzania	Dar es Salaam	1.0	25	2.3
Togo	Lome	1.9	27	0.8
Tunisia	Tunis	0.5	61	1.8
Uganda	Kampala	0.6	20	0.8
Zimbabwe	Harare	0.7	100	1.5

*Solid waste generated per person, in kilograms per day.

+Percentage of households enjoying regular waste collection.

=Actually based on city levels of 1993 by UNCHS (Habitat, Nairobi 1997)

Sources: * + World Resources 1998-99 p.278, Data Table 9.3 Urban Data.

The provisioning of African Cities. http://www.aiid.org/publ_dietz1.htm & World Wide Cities Product Sample Data.

<http://www.meridianworldldata.com/product-overview>

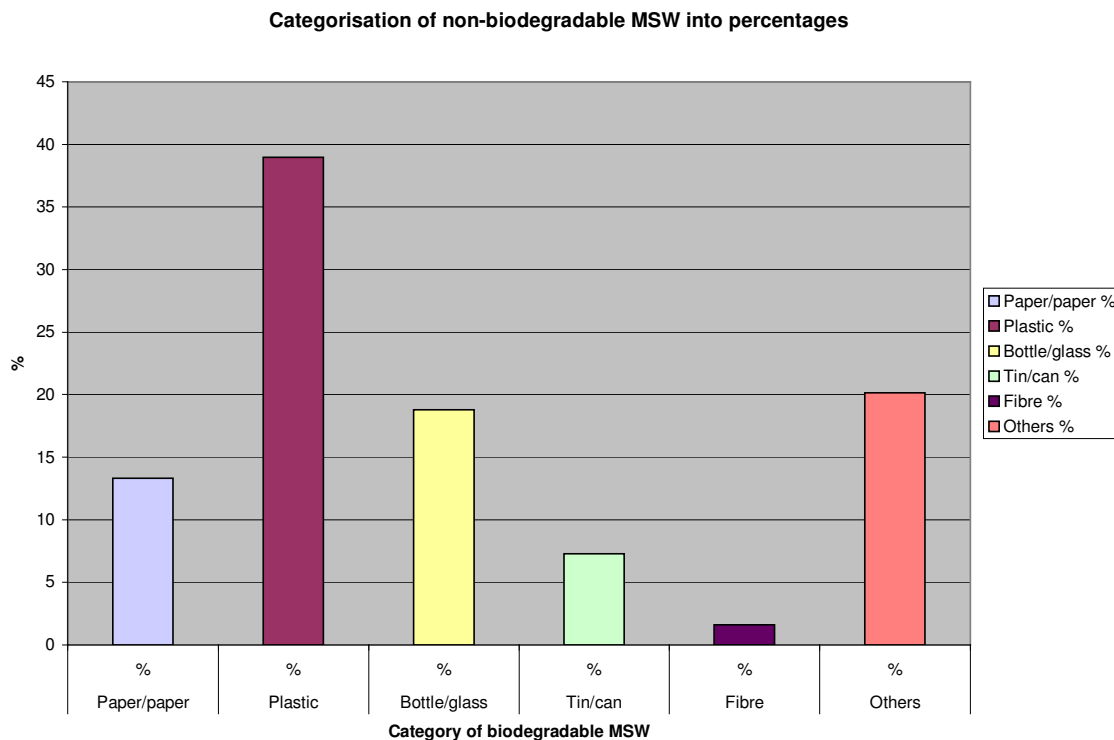
Even though many factors influence municipal solid waste management, population size is an important one. There is a positive correlation between city population size and both the percentage of waste moved and rate of households enjoying regular waste collection. This suggests that increasing city size poses a greater problem to the solid waste management in Africa. In Yaounde City, Cameroon. Current figures show that the current population is estimated at 1.2 million people, up from 600 000 in the 1960s. Not only have the quantities, of the waste increased from about 300 to 1 200 tons per day but also the variety. The city area is estimated to have also increased from 5000 hectares in



1963 to 20 000 hectares in 2000 with 14 00 hectares residential (Vermande *et al.* 1994). The collections rates have fluctuate over the history of the city from near zero percent collection in the 1990s to the present 40-50 percent execution by HYSACAM, the municipal solid waste management company in Yaounde. Management in Bamenda is in the hand of the urban council. Collection rate is about 70 percent.

The waste stream is mostly made up of garbage, which constitutes 50-80 percent of all the waste. Garbage includes wastes from household preparation, cooking and serving of food; market refuses, handling, storage and sales of produce and meals. Non-biodegradable solid waste or rubbish (paper, carton, cardboard, plastics, clothes, rubber, leather bottles, glass, ceramics, tin cans, etc.) is also generated. Other sources include: ashes, bulky waste, street sweeping, abandoned vehicles, non-hazardous industrial waste, construction and demolition waste etc. In addition to the sources already mentioned, waste is derived from private and public institutions and sewage treatment centres. One other source of solid waste in African cities is imported second hand goods from the developed world. These old goods are near the end of their life cycle and spend little time with their final owners before being put aside as waste. Cases of accepting imported foreign waste in exchange for 'hot' currencies have been reported in Africa. Current studies on Bamenda city in Cameroon by the author indicate that one new and increasing element in waste composition is that of non-biodegradable waste. Electronic waste or E-waste, and waste from white goods are increasing. In regular household waste generation, plastics, paper and cartons, tin cans, glass, bottles and fibre are on the increase (see figure 3). Their rates of generation have a relationship with the different socio-economic parts of the city- a trend that suggests the increasing influence of globalization and changing consumption habits.

**Figure:4 Categorisation of non-biodegradable solid waste in Bamenda city,
Cameroon**



Source: Field experiment by the author April 2003

There are principally three main classifications of urban solid wastes: municipal, industrial and hazardous (Heeramun 1995). What is defined or designated ‘municipal waste’ depends upon the individual county or city’s definition of municipal solid waste. Nevertheless most municipalities in Africa handle solid wastes from households, markets and institutions, street and public open spaces, dead animals, and non-hazardous waste from processing and industries. This holds true for the case of Cameroon.

4.3 Collection and transportation

4.3.1 Methods

Even though more than half of the entire waste management budget is dedicated to waste transportation alone, only a very limited percentage is moved to the waste treatment centre or disposal. In Yaounde, Cameroon two main collection systems can be identified: the primary or pre-collection at household level and the secondary collection by the official waste management by the urban council or its contractors. There have been many agents and methods but since 1998 solid waste management in the city was re-contracted to a private company called HYSACAM. This company started waste management in the city since 1969 but withdrew in 1991 when economic crises and structural adjustment destabilised the country and they could not be paid. They position portable public skips of various sizes (1m³, 3m³, 6m³, 9m³ and 16m³) on strategic positions in the city and empty them on planned daily itineraries. 348 bins of 3m³ to 16m³ category exist today (Monkam *et al.* 2000). These skips are of various dimensions depending on the generation capacity, the accessibility of the area. Various categories of collection dumper trucks fitted with corresponding specialized devices for removing and dumping waste



have been imported for use. Sweeping of some main streets is done manually as well as with two mechanical van that exist. These equipment breakdown quite often and they are also very expensive to run and maintain. HYSACAM removes about 40-50 percent of the waste today-a great improvement, however, many problems still exist.

Plate 1: Some waste management equipment in Bamenda & Yaounde



Source: Photos by the author

One of the big problem is the pre-collection of large amounts of waste trapped in inaccessible residential quarters, prior to its transport to the nearest official regular waste management facility. Such areas constitute more than 60 percent of the city area and are inhabited mostly by low-income members of the African urban communities. There is no house-to-house collection, so pre-collection from homes to the public or communal skips placed at strategic spots in the city, has to be organized by households or some informal private groups. Such groups and individuals are doing a complementary service to HYSACAM even though on their initiative. They do the service for a negotiated payment from the households concerned. (UNEP-IETC 1996) argues that while such groups play a very significant role in waste management in Latin America and Asia they are however rare, in Africa. Nevertheless many sources have identified the one and only organised scavenger cooperative called the Zebballen of Cairo, Egypt. (Teerlink *et al.* 1993), (Medina 2000). According to Medina it is the oldest in the world. It is well developed and organised. In agreement with the Cairo city government, they collect and recycle waste within the city. Some authors including Waa (1990), Daillo (1990), and Tonon (1990), all cited in Medina (2000) writing on scavengers in African cities, argue in favour of and recommend the use of the few found around dumps. They play an important role in MSWM in low-income countries. Nevertheless increasing literature and field experience reveals that as these informer groups get better-organised conflict between them and the formal private companies (some of which are transnational) over zones of operation become rampant. (Kamel 2000) cites such situations in Cairo and there are increasing conflicts between the waste management company (HYSACAM) in Yaounde (Cameroon) and the local waste collection teams. Conflict over zones of exploitation is only one of such problems. Dr. Kola-wole Raheen in Megafu (3003), advising the Lagos State Government on its waste management, draws their attention to one other danger of multinationals thus: ‘Multinational companies all over the world are known for managing wastes the cheapest way by dumping them into rivers where people would not understand what have been dumped’. Giving a concrete example (Marchand 2002) cites the disposal



of refuse in the middle of a South African township by SITA, an affiliate of the French Conglomerate Suez. According to this source, the township unknowingly accepted a quantity of toxic waste, mostly medical. This was in complete disregard of the welfare of the township's inhabitants and especially children who were exposed to poisoned used syringes. The author characterizes it as double standards because different rules are applied in different places for the same situation—"keeping the north clean and the south dirty"(Marchand 2002:1). This company was active at the Johannesburg Earth Summit, the same source remarks.

4.3.2 Problems

The traditional approach where municipal authorities monopolise waste management, ignoring other stakeholders, using command-and-rule strategies, and ill-adapted imported technology is common in African cities. This approach does not improve much the waste management situation in Yaounde, Bamenda and other African cities. The non-involvement of the major stakeholders worsens the scenario. Asomani-Boateng *et al.* (1999:1), quoting Adedibu and Okekunle (1989) use the case of Lagos, Nigeria to illustrate what looks like a common phenomenon in many African cities. They ranged Lagos as the dirtiest capital in the world and further expanded:

..in most parts of the city, streets are partially or wholly blocked by solid waste. Similarly open spaces, marketplaces are littered with solid waste. In most cases drains are clogged or totally blocked and many compounds are hemmed in by solid waste.

According to these very authors, similar conditions exist in many other cities including Accra, Ghana where they note that only 11 percent of the 1.4 million people benefit from home collection of their solid waste. Here, as in many other cities, the uncollected waste is illegally dumped in open spaces, water bodies, storm-drainage channels, buried, burnt or deposited along the streets or roadsides. Blocked drainage channels cause flooding in the cities (Ngnikam 2001); (Lambi 2001). Many authors attribute the prevalence of parasites, tetanus, malaria, hookworm, cholera, and diarrhea so common in many African to unsanitary conditions caused by waste being simply strewn around (McMicheal 2000); (Mwanthi *et al.* 1997). Also see Plate 2.

Plate 2: Photos showing some environmental problems of waste deposition.



Source: Photos by the author)

a=yoghurt plastic cans at a waste dump. B=waste at river valley (Bamenda)

4.4 Transfer Stations

Transfer stations are not common in Africa except in Abidjan where such a station was once in existence but is no longer functional. Rubbish picked up from communal skips it is moved straight for the deposal site. Open dumps are common and usually located on the periphery of the city where accessibility and costs are the main considerations. (Yhdego 1995), using the case of Tanzania, demonstrates that sometimes, fragile environments such as swamps, river valleys (see plate 2), or dugout pits are reclaimed with such waste. Transfer stations do not exist in Cameroon cities.

4.5 Waste reduction and recovery

There are a few formal systems of material recovery in Africa. However, there is a wide reuse of plastics, bottles, paper, cardboard, cans for domestic purposes. The practice is highly common among the poor in the city. (Yhdego) argues that the greatest problem is the lack of local or national markets for the recyclables. Most manufactured goods are imported. Nevertheless, few items are converted into new products for local use e.g. smelting of aluminum cans and scraps metals into household utensils, transforming old car tyres into shoes, ropes, flower pots; and paper and plastic waste articles into tourists' products. Paper and carton is transformed into newspapers. Rubber waste in Yaounde, Cameroon is increasing being transformed into useful products by a non-governmental organization called 'Centre International de Promotion de la REcuperation' (CIPRE). (CIPRE), created in 1996, has as its objective to collect and 350 tons of plastic waste, recycle 80 percent, repair 2 percent and send 28 percent back into the waste stream. Today, with a staff of 30 CIPRE, buys and collects 10 tons of plastic waste from 50 sites located all over the city every month for recycling. There are 10 collection agents for the 50 sites. A ten-point circuit, using a pick-up truck, is made in day totaling five in a week. This accounts for one percent of Yaounde's waste generation. CIPRE's activity includes sensitization and education of the public on environmental issues. Though it plans to expand its activities, finance shortage remains its greatest impediment. One other way of recycling is composting.

4.5 Composting



Many authors identify the organic content of solid waste in African cities to be as high as 70 percent (Yhdego 1995);(Tanawa *et al.* 2002). This suggests that composting could be a very viable recovery alternative (Mbuligwe *et al.* 2002); (Mustafa *et al.* 2002). However this has been tried in various countries at different scales with very poor results. Composting at industrial scale was tried in Dakar, (Senegal), and Abidjan (Cote d'Ivoire) but they soon failed because of no demand for the final product. International NGOs have sponsored small scale composting in Benin, Cameroon, Egypt, Kenya, Nigeria, South Africa, and Zambia; but the practice has not had significant impact on the cities MSW reduction (UNEP-IETC 1996). Poor quality of the manure resulting from inadequate segregation of waste appears to have increased the low demand. In a recent study of composting in Bamako, Mali and Cameroon Keita (2003);Keita (2001) demonstrates how increasing quantities of strange global products such as plastics and packaging have invaded compost manure, rendering it unacceptable by farmers. Some NGO, started composting of municipal household waste in Yaounde during the Urgent Social Emergency programme instituted during the Structural Adjustment period when waste was drowning the city. The project has ended due to many problems, but one key reason being poor quality as a consequence of plastic materials and imported of artificial fertilizers.

4.6 Incineration and waste-to-energy recovery

This remains a low option for Africa. The high organic and water content of the waste stream make incinerators energy consumers rather than energy producers. Incinerators are also very expensive to construct and run. The failed cases of incineration in Tanzania and Nigeria demonstrate that incinerators are not sustainable for Africa (UNEP-IETC 1996). In Yaounde and Bamenda Cities, hazardous wastes such as hospital waste are been incinerated at a small scale.

4.7 Landfills

A majority of landfills are dumps on open plots, wetlands, and lands with water near the surface (Johannessen *et al.* 1999). They are usually not provided with liners, fences, compactors or soil cover. Waste pickers use this advantage to visit the site and sort valuables for themselves (Adeyemi *et al.* 2001), (Yhdego 1995). According to Korfmacher (1997), South Africa, Uganda, Ghana and Egypt are upgrading their landfills to sanitary ones. One great concern is that in Africa, the landfills are owned and operated by the very body that is supposed to enforce standards. The philosophy of getting waste out of sight and consequently out of mind seems to be the overriding consideration of these authorities. Hence removing the waste is considered paramount giving their limited resources. This neglect starts from the way aid donor see waste matters. According to Johannessen *et al.* (1999) 'Of all the regions, Africa has the lowest level of investment of World Bank funds in solid waste sector'. This author also notes that eventhough, African governments spend much on solid waste management the investment on this waste sector, as a fraction of total project costs is very low compared to other regions. In 15 projects in the African region the author explains, six percent was the average with the lowest being one percent and the highest 27.6 percent.

Yaounde has one sanitary landfill with a weighbridge located at Nkolfoulou north east of the city. It is 15 km from the city's administrative center. According to the weighbridge



operator, it receives 7000-8000 tons of deposits each day. Bamenda MSW is deposited in an open dump seven km (from the city center) to the north west of the city on the valley of the River Mezam. More viable options are being contemplated upon for MSWM. For example, in a recent study on MSWM systems options for Yaounde city, (Ngnikam 2000) based on environmental and economic considering and using the Live-Cycle and ELECTRE111 decision support system methods respectively, selected landfilling of MSW with the extraction and use of biogases as the best out of the four options studied. Whether such ideas would be of interest to decision makers is a different question. There appear to be no plan to upgrade the dump in Bamenda to a sanitary landfill.

4.8 Management processes.

In most countries the Ministry of Environment has a multiplicity of functions e.g. forest, health, industries etc. In Cameroon, that Ministry is combined with forests while solid waste issues fall within the jurisdiction of many ministries (cities, territorial administration, environment, health, industries and commerce). However, most urban councils in Africa have a municipal waste management system, usually placed under the sub-department of health within the urban council. The cities receive operational budgets from the central governments for urban services including waste management. In Cameroon, for example, councils are prohibited from charging rates for specific services such as waste management. However, citizens pay taxes on property, business, etc to the councils. In Yaounde, this could only cover 10 percent of the costs. That is why the central government always steps in to redress the situation. Where special rates have been introduced, Agunwamba (1998) and Mwanthi *et al.* (1997) argue that the issue of equitable taxation has been problematic. However field experience in Yaounde and Bamenda show that up to 70 percent of the city dwellers would be prepared to pay as much as 1 500 francs CFA (\$10) per month, if only their household waste could be removed regularly. Those who didn't want the idea say they already pay taxes to the councils for service and saw such special charges as duplication or an additional payment for inaccessibility. Some believe their children do it as part of their contribution to the family tasks. Survey results in Bamenda and Yaounde show that 80 percent of households waste is moved by the children to the public bin or dump.

The urban councils are directly responsible for the total waste management process or contract parts of it out to the private sector. In Benin a communal group is being tried for waste management. In most countries the urban councils remain poor, weak and badly administered. Kironde *et al.*, (1997:69), drawing experience from Dar es Salaam, Tanzania, and other cities in Africa, argue that solid waste management problems in these cities are not due to lack of resources as is often claimed. They identify other key impediments including: corruption, poor relationships between politicians and the general public, political apathy, command-and-control approaches, and dependency (householders may depend on the central government, the international community, or on ill-adapted technologies). Other authors cite additional problems, such as rapid urbanisation and population growth, the complex nature of the society, low standards of living and education, the attitude of the waste workers and the stagnating economy (Yhdego 1995);(Agunwamba 1998). Field experience in Cameroon confirms this trend and additionally notes the increasing conflicts between stakeholders.



In a bid to resolve some of these problems in Yaounde, a pilot scheme has been put in place by a collaborative efforts of some French and Cameroonian partners with the objective of ameliorating coverage of waste collection, creating a link between local small scale operators and enterprises which collect and treat waste. More specifically it aims to organize pre-collection in inaccessible neighbourhoods of the city, fight against marginalisation, put in place cooperation between actors and experiment different methods of financing. The French partner is INSA Valor, Equipe PLDEN, while on the Cameroonian side are: the Yaounde City Council, HYSACAM, Yaounde VI sub Divisional council including the chiefs and populations of the areas concerned and some Common Initiative Groups (CIGs) such as GIC-JOVELEC and TAM-TAM Mobile. The project is coordinated by an NGO called 'Environment: Recherche-Action au Cameroun' (ERA-Cameroun). The project is going on well, but it is too early to predict its long run success, especially after foreign sponsorship shall have given way to national collaborators, or when conflict shall have propped up over economic interests. Nevertheless, it is an important step in developing a sustainability integrated solid waste management system for any city.

5.0 Conclusion

This paper's findings suggest that most African countries do not have a firm grip on any sustainable method of municipal solid waste management. It is all a history of trials and abandonment with many issues seemingly unresolved. Africa's national and urban governments are copying ill-adapted global strategies and technologies not suitable to the local realities. They are not adequately exploring and using local initiatives and strategies, which could go a long way to improve solid waste management. Imported waste management technologies have not adequately solved the problem. Local and adapted techniques involving collaboration with the stakeholders and coordinated by the government would be important. Decentralised participatory management with mutual respect and close collaboration is indispensable.

Globalization and urbanization have come to stay. They have benefits as well as a good number of irking problems. Finding solutions to problems associated with both urbanization and globalization, while at the same time realizing their positive prospects would be the better way out. The ability to deal with this new situation will require effective capacity building for cities and communities toward participatory and good governance. Such will produce city leaders who will not close their eyes to the environmental degradation by multinationals while opening their pockets, but forward-looking leaders who will put their city, its environment and its people ahead of every other consideration. Such a strong city government will also be able to place checks on the power of transnational corporations, press for certain minimums including share profits of their less regulations and free trade barriers.

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