THE QUEST FOR EFFICIENT WASTE MANAGEMENT ARCHITECTURE IN GHANA

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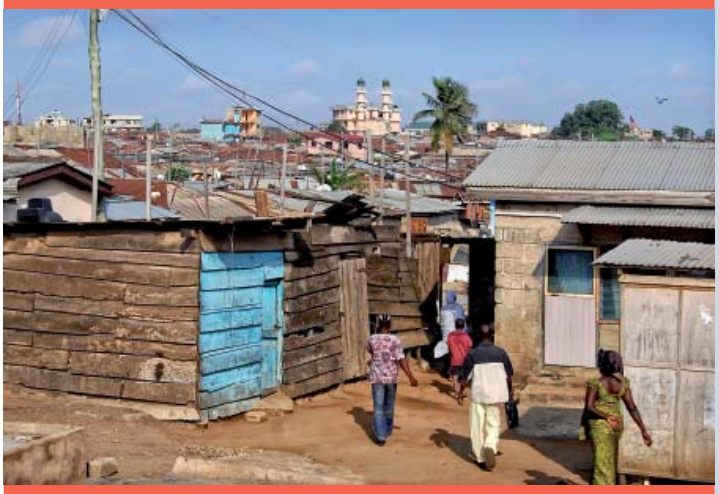

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In the quest for efficient waste management system in Ghana, authorities' 'waste war' adjudication strategies have ignored the historical focus on socially all-inclusive planning designs. Instead, approaches adopted so far unduly promote a market-led agenda making the public good nature of waste largely ignored. A careful consideration of how each society engages with service provision and its normative dimensions should be put at the centre of waste policies. Such approach transcends ideology and institutional exigencies and moves towards the realm of practical reason, everyday ethics, and embodied practice. Until the evidence—along with institutional and financial instruments—shows otherwise, city authorities' will do well to integrate proven innovative management practices taking place 'in their backyard'.

INTRODUCTION

The quest for an efficient solid waste management (SWM) system in Ghana has a colonial antecedent. The campaign emerged when the need for environmental protection in spatial planning practices became imperative. Pointedly, increased population growth and economic development led not only to increased volumes of municipal waste significantly, but also its composition (Mieza et al., 2015). Being a social problem, the menace of waste has neither spared the developed nor developing nations but the problem is more pervasive in developing economies, where the challenge is generating more pressure on existing environment and human health.

Since its inception, the SWM trail has been bumpy, exhibiting occasional transformations in tandem with changing volume and content of waste, as well as technology. Nonetheless, very limited studies have investigated the historical geographies of SWM strategies and their outcomes. Largely overlooked are the effects of these dynamics on the urban fabric and its social structure, especially in questions related to the inequality of service provision and how that can inform future policies.

SWM – FROM COLONIAL TIMES TO THE PRESENT

The troubled history of unsanitary conditions in Accra can be mainly attributable to policy failures. This has provided an opportunity to dig into history to shed light on factors influencing policy development outcomes, and the politics of policy retrenchment to guide future polices. The first [epoch] sustained, non-infrastructural foray into environmental sanitation came on the heels of the growth of Accra, dating back to the early 16th century, albeit in an unplanned manner. Demographically, Accra's total population increased from 18,574 in 1911 reached 337,828 in 1960, and by 2010, had passed the 3 million mark[1]. With increasing population, the authorities experienced the tension of addressing both the pro-growth and pro-poor agenda, leading to the establishment of the Accra City Council (ACC) in 1898, which was charged with the responsibility to keep the city clean.

The initial policy reforms—then based on European principles and legal regimes—created the two faces of Accra: the European and traditional (native) towns[2]. This division was maintained exclusively through a rigid policy of residential segregation via a cordon sanitaire of vacant land, with the 'local' merchants occupying the Native Town, and the Ridge area hosting the European Town. With time, the two 'towns' developed extremes in living conditions, from an over-crowded, disorganized, chaotic, and unsanitary Native Town, to an exclusive, expatriate European and African elite enclaves of European Town.

There is the need to conceptualise waste as a public good

Although the duality was the planning choice of the colonial administrators, their policy on sanitation considered waste as a 'social good' and avoided creating a sanitation nightmare, and by and large evinced inclusivity (not exclusivity). By 1925, while the European towns enjoyed a household collection services, public dustbins were introduced in the Native towns and emptied by means of two pushcarts managed by labourers. The authorities also promoted the use of sea water to occasionally disinfect drains in the European Town and the stagnant water spots in the Native enclaves. There were also environmental health inspectors who conducted house-to-house monitoring to check whether the laws on health and hygiene were being adhered to; and when found culpable, offenders were prosecuted uncompromisingly[3].

Further, few sites located on the outskirts of Accra served the purposes of final disposal until in 1929 when incinerators manned by a sanitary man who powered the incinerators into action were introduced. By the late 1950s and shortly after independence in 1957, the existing infrastructure became stressed, resulting in a total breakdown of the only incinerator by 1970, which then led to the crude dumping of waste into quarry pits at Aborfu, Achimota, and Abeka in Accra. This technically marks the end of the first epoch of SWM trajectory, a period when waste was contextualised as a public good and when the institutional arrangements exhibited an all-inclusive participatory process.

The early 1970s ushered in the second epoch; a phase during which the city authorities introduced two systems of refuse collection as part of an effort to streamline and respond to the challenges accompanying increasing population growth. Through prescriptive planning, the then high-income, low-density, planned areas—such as Laterbiokorshie, Ridge, and Kanda—had hand collectors using wheelbarrows to collect refuse from house-to-house in return for monthly fees. However, residents living in lower-income, high-density, unplanned areas were to dump waste at no cost at central points, to be collected into side loaders by labourers. The authorities' inability to mobilize sufficient revenue to meet the embedded financial obligations in this strategy led to a pile-up of refuse in low-income areas, whose unplanned growth the authorities themselves had supervised, with every open space having been haphazardly developed into 'residential accommodation', including the use of containers and kiosks.

In an attempt to improve on the quality of service delivery, which ushers us into the last epoch, the government of Ghana obtained funding from the Federal Republic of Germany for the Accra Waste Management Improvement project and established the Waste Management Department (WMD) in 1985. The grant also proposed a privatization policy which was expected to leverage private sector expertise and financial muzzle. This public-private partnership officially remains the policy option today for dealing with the waste challenge (e.g. negative externalities, information asymmetry, natural monopoly), to improve quality of service and to extend coverage to previously un-serviced area.

Operationally, the institutional arrangement that materializes in a particular area depends on several factors, including income, physical characteristics, the strength of community organization and the general policy of local authorities. Although seemingly amorphous, two primary arrangements can be isolated: the central communal container system (CCC) and house-to-house (HH) systems all provided and run by private sector operators. But, the type (foreign or local) and nature (politically and socially connected) of the service provider have undergone metamorphoses, and the dynamics manifest with changes in government.

Each locality is primarily characterized by one institutional method and one dominant socio-economic status. Ultimately, the characteristics and constraints of a space

1 Owusu and Oteng-Ababio, (2015)
2 Songsore, (2017)
3 Songsore, (2017)

significantly shape its institutional arrangements for SWM. Suffice it to add that, the state polices on SWM have changed from central government control of resources and power to a more facilitative role amidst different levels of political and socio-economic environment. The public sector has become the purchaser of services on behalf of citizens, while the private sector has taken on an increasing role as the provider of public services and obscures SWM's status as a public good[4].

RAMIFICATIONS OF SOLID WASTE POLICY INITIATIVES

The assessment of a SWM system provides city authorities with an opportunity to re-evaluate performance and seek policy adjustment. The Local Government Act 624 (1993) and the environmental policy (2010) guarantee everyone with the right to a clean environment—albeit till date, services remain unevenly provided across cities[5]. Under Act 624, the WMD is to produce SWM operational plan to progressively ensure efficient, affordable, and sustainable services, while the central authority holds regulatory responsibilities. However, the responsibility for service provision has shifted over the past 30 years. Under the present prescriptive rights-based SWM discourse, tempered as it is with a neo-liberal cost-recovery approach, implies that not everyone will be able to pay for the right services. This raises concerns about whether the focus of the service is on cost-recovery or on the pursuit of social and environmental justice (public good).

The consequence of the current architecture manifests conspicuously within cities. In Accra for example, residents in the low-income, unplanned areas (constituting about 74% of the population) seem to have been declared persona non grata. This large segment of the population remains physically situated within, but conceptually outside the city boundaries, having been virtually excluded, and enjoys hardly any decent services —even though 'concern for the ordinary people remains an over-flogged political mantra. In truth, the current socio-economic realities and the adoption of the conventional 'polluter-pays principle' mean that the polluter either pays for his waste to be disposed of, or finds a way. In Accra, evidence abounds that city authorities have over the years loudly touted their commitment to maintaining a clean environment, and have sometimes openly denounced policies that pursue selectivity in service delivery at the expense of universalism. Yet they have neglected underserviced communities including Abuja, Agbogbloshie, and Glefe, which still exist as conspicuous eyesores.

In seeking an innovative way to see, think, and understand the waste war and perhaps build one of the cleanest cities in Africa, there is a need to first question what went wrong and what has been assumed thus far. The challenge is not simply to call for fresh and improved solutions; and, indeed, it is not a problem at all—if by 'problem' is meant an issue separate from the society which must be confronted, deconstructed, and solved. As the French philosopher Gabriel Marcel would argue, we deal here with a 'mystery'—a situation in which we are inextricably involved, and in which we must call ourselves into question if we are to again see clearly.

CONTINUOUS UNSANITARY CONDITIONS IN ACCRA: A CASE OF POOR PROGNOSIS?

The year 2014 stands out in Ghana's annals as the year of an unmatched outbreak of cholera (20,279 cases), which led to the loss of life of 169 people[6]. The outbreak was quite perilous, precipitating the government to initiate a National Sanitation Day (NSD) in November 2014. Clearly, such an embarrassing and lethal sanitation situation stands in sharp contrast to what pertained in the colonial era and shortly before independence, which was a 'technology- and energy-starved' period. Significantly, the managers of the city then saw waste as both a public good and a resource, and instituted a SWM system that was economically feasible, socially acceptable, and environmentally friendly.

A demonstrable policy reality in the recognition of waste as a resource for example, was the establishment of the Teshie Compost Plant (TCP). Conceived around the late 1950s, enduring 'years of stressful ectopic', and finally delivered in the late 1970s, the plant produced compost fertilizer from household organic waste. The paucity of data notwithstanding, available records indicate that the plant since its inception never operated at full capacity, with production capacity falling from about 92% capacity in 1995 to only 11% in 2004 (see Figure 1).

Although the TCP failed, it offers very useful lessons for the future policy development. The plants for example failed primarily owing to a lack of source-separated feedstock, which resulted in the production of insufficient quality compost (composted mixed waste). This led to continual mechanical failure, which was exacerbated by the conditions of a technology that had long exceeded its useful life. Thus, 'if the reasons for the demise of the plant had been well digested, it could have held the key to the success of any future compost plant like the Accra Compost Plant [ACP]'[7].

The Accra Compost and Recycling Plant was established in 2012, through a public-private partnership programme. The company has the capacity to process close to 600 tonnes of municipal waste per day, but operates less than 60% due mainly to inappropriate feedstock. The company's challenges are technically no different from those faced by

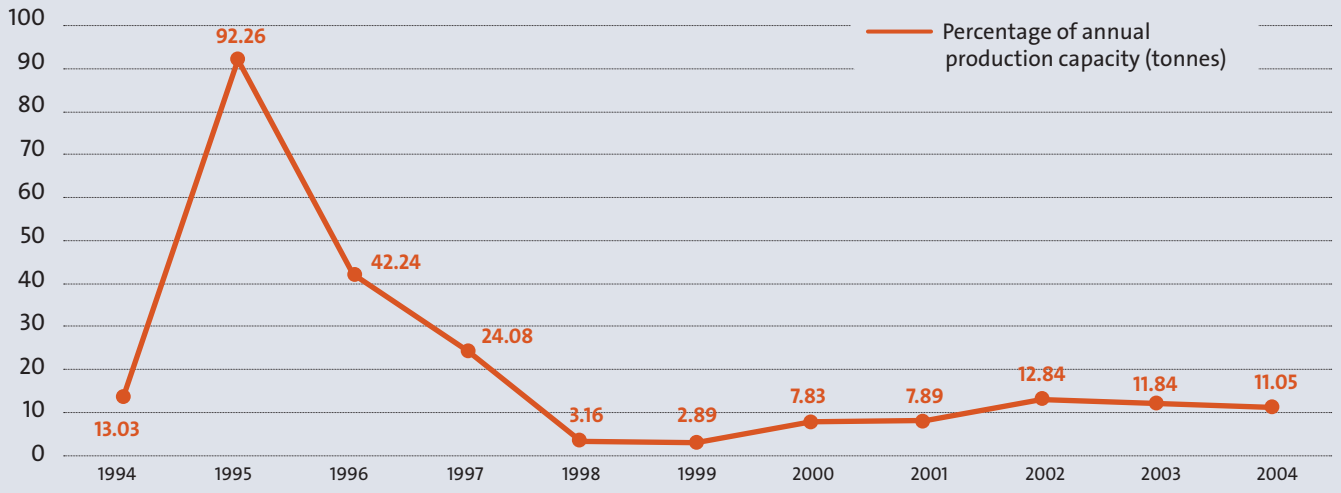
4 Oduro-Kwarteng and Dijk, (2013)

5 Oduro-Appiah et al., (2017)

6 Amoakohene, (2015)

7 Personal interview; October (2016)

Annual production levels of Teshie Compost Plant, 1994–2004



Source: Oteng-Ababio et al., (2013)

Figure 1

the Teshie plant. For example, today, due to lack of source-separated feedstock, ACP encounters about 30% faecal matter in its feedstock, which has compelled the company to stop accepting waste collected from low-income and market areas.

Contemporary analysis of the Ghanaian economy shows strong signs of improvement—with an annual gross domestic product growth of 5.7% per capita[8] - and witnessing an immense technological transition, yet when it comes to issues on SWM, most citizens appear despondent on the basis of past experiences. In particular, the government's market-oriented prescription has virtually condemned the poor residents to a perpetual war with filth and unsanitary conditions.

In terms of waste disposal, the present strategy, where waste is dumped on neglected, non-systematic disposal sites without pre-treatment, and causing significant pollution in the immediate environs is unacceptable. Within the last two decades, Accra has witnessed the commissioning and decommissioning of not less than 11 dumping sites.

Typically, almost all local landfills do not meet the basic sanitary and technical standards and have become unsanitary, presenting risk both to humans and the environment. This development has created a situation where the public is questioning whether landfills constitute "a blessing or a curse" to the people they are meant to serve. The situation has aggravated the rate at which the city administrators commission and decommission the landfills without regard to public health.

Evidently, the recent SWM approaches—often foreign-dependent—have so far yielded few results, as they mainly remain incompatible with local socio-economic realities. This situation is likely to persist and even worsen until and unless the imported solutions are integrated with all-inclusive indigenously derived strategies, something the authorities have failed to do till date—or failing to do correctly. It is therefore high time the city authorities innovatively planned directly with these communities and their inhabitants.

GETTING THE FUNDAMENTALS RIGHT

The history of SWM practices, and after the introduction of the PPP, which embraced foreign paradigms, has consistently failed to achieve set targets. The reasons for this could include the social (mis)construction of the appropriate architecture, and the dramatic changes in waste volume and content. Consistently, most past strategies tend to evoke knee-jerk solutions, instead of solutions based on empirically-driven content-analysis, solutions that are the product of consultative, socio-economically, and politically-inclusive processes—and which at the very least, and as a matter of urgency, protect the interests of all including the poor. Simply put, there is a need for an all-inclusive policy initiative based on scientific research, without which the deteriorating situation will frustrate the quest to make Accra one of the cleanest cities in Africa. There is the need to conceptualise waste as a public good to help uncover the fatal flaws impacting the industry as discussed below.

RE-THINKING WASTE AS A PUBLIC GOOD

The quest for sustainable SWM is a coherent objective everyone supports. But there is less consensus on

8 Mieza et al., (2015)

how exactly this should be done, and the process, conceptualised. To date, the experimented policy initiatives have been largely fruitless, and the results are clearly visible in cities. Instead of adopting one-size-fits-all conventional approaches, city authorities should examine every strategy in its empirical dimensions in order to reveal the range of actual and potential policies that work to 'articulate and aggregate identities, interests and preferences'[9].

Conceptually, seeing waste as a public good must be 'municipalised' in order to avoid creating greater societal costs[10]. Yhdego (1995) reveals that lack proper sanitation can have double the rate of diarrhoea and six times the rate of respiratory disease. This raises concern about the adoption of the 'polluter-pays' principle as a funding strategy. To say that the approach has worked well in developed countries is not at all to suggest that this is a permanent condition or will always, magically, work the same way everywhere else. Put differently, the simple invocation of the polluter-pay-principle as an all-purpose funding mechanism for SWM can never be enough.

Mariwah (2012) notes that with such an arrangement, deprived communities are often poorly served owing to their inability to pay; thus, contractors often simply fail to collect from those areas[11]. Moreover, payments exacted from the citizenry do not typically cover SWM in large public spaces as well as treatment and disposal, thus compromising service providers' liquidity positions and encouraging situations where waste gets dumped illicitly. Given the socio-economic realities in Ghana, it appears ethically challenging to adopt a user-fee approach to generate sufficient revenue to cover the full costs of a SWM cycle. This makes a compelling case for considerable government intervention and subsidy to ensure that poorer and public areas are well served to ensure public health.

DATA DEFICIENCY

Technically, instituting an efficient SWM system necessitates understanding the waste generation rates, on-site handling and storage systems, collection and transport, processing and recovery, recycling and reuse, treatment, and final disposal. These informalities, particularly getting reliable estimates of waste generation rates and types are vital for effective planning and taking better financial, regulatory and institutional decisions. There must be sources where data collection is transparent, and consistent enough to enable accurate measurements over time. Such accurate and reliable data 'is the link between good planning and good results', or the sine qua non for designing and implementing any efficient system. Unfortunately, the last time Ghana witnessed a comprehensive waste audit was more than 30 years ago. The official data in use today are projections made back in 2003 using the 1993 nationwide waste audit (see Table 1).

Waste composition analyses conducted in 1993 and 2003

Waste fractions	Percentage fraction (%)	
	1993 (WMD)	2003 (WMD)
Organic material	72.6	65.0
Inert material	8.9	17.1
Solid plastics	1.3	3.5
Plastics bags, foils, etc.	2.7	-
Glass	2.0	3.0
Paper & cardboard	7.2	6.0
Metals and Cans	2.8	2.5
Textiles	1.5	1.7
Miscellaneous or other Waste	0.9	1.2
TOTALS	100	100

Source: Oteng-Ababio, (2010) *Table 1*

The lack of up-to-date data creates situation where various studies, based on their limited micro data, yield contradictory figures. For example, while Tsiboe and Marbell quote the total daily waste generation in Accra in 2000 as 1,800 tons, the regional administration quotes 2,200 tons. The challenge is not only the difficulty of obtaining reliable data at the right time, but also getting disaggregated data to facilitate intra-community inequalities analysis and track any changes. Ultimately, the lack of such nuanced data can provide misleading information and, inadequately informed and even badly misinformed policy prescriptions.

OVER-RELIANCE ON FOREIGN INPUT

The recent policy of city authorities with foreign institutions, approaches, and methodology, as against building the capacities of local institutions has also affected the drive for sustainable SWM practices. Essentially, such foreign paradigm shifts not only call upon the authorities to enact 'light-touch' regulations such as tax exemptions and to improve the physical environment to attract foreign business, but also provide fertile breeding grounds for corruption and cronyism. One such ill-fated policy was AMA's 7-year service contract with the Chagnon City and Country Waste Ltd (CCWL), signed on 4 December 1997, after securing a Canadian Government credit facility of US$14,630,998, meant to purchase waste service equipment. The AMA later contracted CCWL and agreed to pay an amount of $30.28 per tonne of solid waste collected and managed at the landfill site. Though the initial contract left no room for local private participation, the CCWL later sub-contracted to local contractors at $5.20 (payable in Cedis) per tonne of waste sent to the dump site; yet CCWL was being paid $22.17 in accordance with the contract signed with the AMA (Oteng-Ababio, 2010).

9 Agnew, (2017: 347)

10 Cointreau-Levine (1994); Yhdego (1995); Hoornweg and Bhada-Tata, (2012)

11 Nunan and Satterthwaite, (2010)

There is a need for a moral authentication to question the appropriateness of a wholesale adoption of foreign-based 'promising' technologies—which are often incompatible with local realities. There is a need to re-evaluate an ethical-business relationship (or state-sponsored monopoly) that creates instruments of authority and control for 'foreign' businesses over 'local' ones. Rather, city authorities ought to innovate, enhance and integrate 'home-grown' capacities and approaches into its SWM architecture. This is born solely out of their demonstrable practical successes—especially regarding the practices of 'private', informal waste pickers in attracting and collecting household waste within high-density and poor spatial layouts, frequently separating waste at source and recycling it. Ultimately, the economic legitimacy for integrating local content can be appreciated when viewed against the fact that, to date, there are very few success stories of effective management practices using foreign models within Ghana and the sub-region in general.

CONCLUSION

Several issues of policy relevance have been raised, not least the need to engage in proper conceptualisation of waste as a public good and to obtain well-established public and private data sources that are transparent, accountable, and consistent enough to enable accurate measurements over time. Perhaps now more than ever, with a worsening 'waste war', the need for networked modes of governance is imperative.

These modes of governance, whereby authorities and service beneficiaries work co-operatively, will include acknowledging the limitations inherent in the foreign SWM models, limitations that make them unfit for purpose in the way they have been implemented in waste management in Accra. Policy makers should appreciate the potential of local solutions, based on local conditions, knowledge, and traditions, and realise that solutions cooked up in distant, unrelated foreign countries can, at best, provide guidelines and ideas. Ultimately, for solutions to really work in practice, local residents must feel that they own these solutions, that they have a major input into crafting them, and that the solutions originate from their best understanding and wishes for their future.

In conclusion, suffice to state that there is no instant cure for these diverse and complex SWM problems, nor is it a simple case of one-size-fits-all. It is hoped that both public and private practitioners, (formal and informal) will be able to design policies that, at the very least, avoid repeating past mistakes and set new benchmarks for effective all-inclusive strategies. Ideally, the future of SWM must be shaped by the lived experiences of all households and firms and must strive to achieve the following functions:

- Offer a reasonable trade-off between the costs and benefits of compliance,
- Reflect the current context,
- Be the product of consultative, inclusive processes,
- Be economically and politically inclusive,
- Protect the interests of the public, particularly the poor,
- Promote stable and sustainable urban governance,
- Build strong social contracts between state and non-state actors,
- Be designed so that even a relatively fragile city body can effectively implement them.

Based on the evidence of the activities of informal waste service providers, some low-income communities have amply demonstrated they have inherent abilities and skills among their own 'professionals' to substantially win the war against waste. What is now required is an unbiased appreciation that less orthodox approaches may be viable as routes to creating an efficient SWM architecture to win the waste war and 'build one of the cleanest cities in Africa'.

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