

# Environmental Legacies of Major Events: Solid Waste Management and the Commonwealth Heads of Government Meeting (CHOGM) in Uganda

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**Abstract:** Important political, cultural, or sports events can accelerate improvements in environmental policy and performance. This study investigates whether environmental improvements—and especially those related to solid waste—materialized during the 2007 Commonwealth Heads of Government meeting (CHOGM) in Kampala, Uganda, and whether these improvements lasted well after that event. A quantitative survey was used to investigate the state of solid waste management before, during, and after CHOGM, measured through the perceptions of urban residents. Interviews and documents were used to interpret survey results. The study concludes that additional resources and institutional changes in solid waste management in the lead up to CHOGM, resulted in considerable improvements. Some of these effects on solid waste management lasted up to at least one year after hosting the CHOGM event. In addition, CHOGM lifted the differences in perceptions of solid waste management between the city center and peripheral divisions.

## Introduction

In November 2007, Kampala hosted the biannual Commonwealth Heads of Government meeting (CHOGM). All fifty-three heads of government of the Commonwealth nations grouped together for one week (November 23 to 30), to discuss matters of common interest. In preparation for this CHOGM meeting, Kampala was upgraded: roads were repaired and improved (sometimes at the costs of small shops adjacent to the roads), graffiti was removed, buildings were upgraded, and solid waste management was improved. The national Uganda government as well as the Kampala City Council (KCC) spent significant resources in this urban upgrading. And this is not unlike what other large cities hosting similar major events have experienced, whether it be political meetings of heads-of-states (such as Earth summits, UN conferences), major sports events (such as Olympic Games, World Cups), or large cultural festivals (such as World Expos). But do such urban upgrading and improvement efforts have an impact, and if so does the impact last beyond these events?

This study investigates whether environmental improvements – and especially those related to solid waste – that materialized during the 2007 CHOGM meeting in Kampala

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continued, and whether they lasted until at least one year after that event. As with many sub-Saharan African cities, for a long time Kampala has experienced many problems related to solid waste management.<sup>1</sup> These problems are related but not limited to lack of access to solid waste services, especially by poor communities, a reluctance to create partnerships with major actors such as community-based organizations (CBOs) and informal enterprises, and disorganized, unregulated and not sufficiently supervised solid waste management (SWM) operations, resulting in heaps of garbage on the streets.<sup>2</sup> It was hoped that the CHOGM would be more than a temporary improvement of solid waste collection and treatment; that the improvements in solid waste management would become institutionalized, such that Kampala would not fall back to the old, pre-CHOGM, situation. So, the central research question that motivated this study is whether and to what extent there are environmental legacies (of at least one year) related to solid waste management from hosting the 2007 CHOGM. Or, in other words, to what extent have CHOGM-induced environmental reforms become institutionalized in solid waste management in Kampala city?

After providing an overview of the literature on the major events and their legacies, the paper reports on empirical survey research carried out in Kampala on solid waste perceptions, investigating temporal and spatial differences of solid waste management following the CHOGM event.

## Major Events and Their Environmental Legacies

### *Mega and Major Events*

Hallmark or mega-events are short-term events of fixed duration. The British sociologist Maurice Roche has laid out the critical characteristics that define mega-events:

Mega-events (...) are short term events with long-term consequences for the cities that stage them. They are associated with the creation of infrastructure and event facilities often carrying long-term debts and always requiring long-term use programming. In addition, if successful, they project a new (or renewed) and perhaps persistent and positive image and identity for the host city through national and international media, particularly TV, coverage. This is usually assumed to have long-term consequences in terms of tourism, industrial relocation, and inward investments.<sup>3</sup>

What defines certain events as “mega” is that they are “discontinuous,” out of the ordinary, international, and simply big in composition. They have the ability to transmit promotional messages to billions of people via television and other developments in telecommunications. Mega-events attract large international audiences and have an international composition.<sup>4</sup> Defined as events that achieve sufficient size and scope to affect whole economies and receive sustained global media attention, “mega-events” include World Fairs; World Cups in soccer, rugby and cricket; the larger regional sports gatherings (e.g. European championships, Asian Games, Pan-American Games); and the Olympic Games.<sup>5</sup> But mega-events can also have a more economic or political character, such as United Nations conferences, Earth Summits, special World Trade Organization meetings, and other political gatherings where a considerable number of heads of state and government gather together and draw large scale media attention. Often, these mega events are organized in more

wealthy locations, as – once awarded – primary responsibility for financing and organizing the event then rests with the host. But also the African continent has hosted mega-events: the 1995 Rugby World Cup, the 2002 Earth Summit in Johannesburg (also known as Rio +10), the 2003 Cricket World Cup, and the recently held World Soccer Cup 2010, all in South Africa.

South Africa is the first African nation to host an event of such magnitude as the Football World Cup, prompting former South African President Thabo Mbeki to pronounce that this was not a South African event but an African one.<sup>6</sup> South Africa, with a per capita income of about USD 5,570, is economically richer than most developing nations, especially on the African continent, and has the capabilities to host such mega events.<sup>7</sup> It is often characterized as one of the most developed among the developing countries. For example, approximately USD 52 billion was spent on preparations to host the 2010 soccer World Cup, especially on infrastructure development. But more often significant events in the African region are what we would call major events, rather than mega-events, having a less dramatic budget and a less global audience. These include African football championships, African Union (AU) meetings, and other important summits. In Uganda approximately UGX 300 billion (USD 100 million; almost the equivalent to one tenth of the annual revenue collections in the 2006/2007 fiscal year) was spent on CHOGM preparations.<sup>8</sup> With a GDP of about \$42 billion it is unlikely that Uganda—or any other African nation with a similar size of its economy—can host mega events of the magnitude of the soccer World Cup, but it can host something major as the CHOGM.

In December 2003, the Commonwealth Heads of Government meeting in Abuja, Nigeria decided that Uganda would host the 2007 CHOGM. This decision was reaffirmed at the 2005 CHOGM in Malta. CHOGM have been held before on the African continent: in Zambia (1979), in Zimbabwe (1991) in South Africa (1999) and in Nigeria (2003). Beginning in 2003, Uganda started preparing for a meeting that would bring fifty three Commonwealth heads of government together to consult, share experiences, and deliberate on issues of pan-Commonwealth and international significance. Her Majesty the Queen of England attended, Prince Charles visited and participated in a number of civil society events, and the CHOGM was preceded by two weeks of activities. There was a Business Forum attended by more than two hundred young people from forty-five countries, a peoples forum attended by fifteen hundred delegates from fifty-nine countries (including non-Commonwealth members), and the Foreign Ministers Forum meeting. Uganda had not previously hosted a major international meeting of the magnitude of CHOGM. Although considerably smaller in participants, (media) audience, and budget than mega-events, it shared with mega-events the international character and media coverage, the still considerable investments (for Uganda), and national self-confidence and civic pride.

### *Major events and the environment*

As the range of festivals and major events has grown over the years, their impacts have increasingly come under scrutiny. Various evaluations and more in-depth studies have found that large scale events have a variety of potential impacts, including economic, social, cultural, political, physical, and environmental ones.<sup>9</sup> The high-profile nature of such events generates the analysis of their favorable consequences, such as increases in tourism, economic performance, urban infrastructural improvements, or the more intangible benefits of civic pride, “boosterism,” and international image building.<sup>10</sup> There is, however, growing

skepticism over the extent to which hosting such events results in significant developmental impacts.<sup>11</sup> The argument of these skeptics is that while there are some positive legacy impacts, they may be intangible and ambiguous.<sup>12</sup> The argument is that “such events are often seen as no more than public relations ventures far removed from the realities of urban problems and challenges.”<sup>13</sup> Once a city has been chosen as the site for a major event, the event begins to take on a life of its own. The hosting of an international event triggers city beautification measures and clearance exercises.<sup>14</sup> The urgency and goal orientation of the project within tight timelines may require that normal procedures be set aside. Sometimes, the urgency overrides the traditional participatory planning processes.<sup>15</sup> Concerns over (construction) deadlines and external requirements, as well as the desire to maximize international impact, means that event preparation and operation become an absolute national priority. Furthermore, for the sake of a successful event, people are urged to pull together and to minimize criticism in the face of the need for cooperation.

Research and analysis on most major events is piecemeal and fragmentary, with a strong focus on (i) western, industrialized countries/cities where most major events take place; (ii) the favorable economic, infrastructural and tourism effects.<sup>16</sup> There is surprisingly little scholarship on the role of major events in developing countries; on the impact of event-related developments on low-income communities, either in wealthy or developing countries; and on the short and longer term environmental consequences and legacies of major events, especially in relation to the above-mentioned two points.<sup>17</sup>

The environmental legacies of major events and the sustained improvement in the quality of life for local/city communities have recently become more popular themes for research.<sup>18</sup> However, the evidence for sustained environmental improvements following major events remains limited, anecdotal, and restricted to sports events such as the Olympics. Constructing positive environmental legacies, instead of only capturing the economic rewards, involves the inclusion of event (re)constructions (both physical and institutional) into long term sustainable development strategies, as happened with the Sydney and Beijing Olympics.<sup>19</sup> Key to constructing environmental legacies is the institutionalization of environmental upgrading activities and strategies, so that these last well beyond the event. For example, it can be hypothesized that city authorities work more efficiently and effectively after hosting a major event, that physical infrastructure is improved, and that people have increased expectations and demands after having experienced how good it is to live in a clean city. But such hypotheses have hardly been tested with empirical research, especially not with respect to developing countries and non-sporting events.

### **Solid Waste Management in Uganda: Preparing for CHOGM**

For long, Kampala experienced many problems of solid waste management.<sup>20</sup> For example, Kampala failed to have regular city-wide collection of waste, resulting in the accumulation of solid waste in drainage channels and along roads, especially in poor neighborhoods. Irregular collection was also caused by irregular payment for the collection of solid waste by citizens. Lack of capacity of the Kampala City Council (KCC) and private contractors increased the amount of small scale informal solid waste service providers. Unfortunately, these many small players were not registered, supervised, or regulated by authorities, resulting in confusion, animosity, and differentiated charges. Disorganized, unregulated, and not sufficiently supervised solid waste collection and transportation by (private) solid

waste collectors led also to illegal dumping.<sup>21</sup> Solid waste transportation trucks were not covered as they ferried solid waste through the city. Light solid waste was often blown by winds and spread along the way while inconveniencing other road users or, in extreme cases, causing road accidents. Mesh nets when used, were often burnt by fire in the solid waste. KCC and private contractors used old vehicles, and a lot of money was spent on repair and maintenance of this fleet.

Though the Kampala City Council (KCC) has contracted solid waste collection and treatment to private firms since the late 1990s, KCC still is in business of collecting and transporting part of the city garbage to the disposal site. As a result, private contractors are unmotivated as there is hidden, and sometimes unequal, competition between the private contractors and the public sector. KCC's main formal tasks are to supervise, contract out, enforce the law, and sensitize the population regarding solid waste. But there were no instituted monitoring and evaluation mechanisms for the performance of the new privatized solid waste management system. It is against this background of relatively poor solid waste management that CHOGM was held in Kampala city in 2007, and improvements were made to upgrade the solid waste management infrastructure.

### *Preparing for CHOGM*

As a host country, the Uganda government was mandated to put in place facilities that meet requirements of the Commonwealth Secretariat and were in accordance with the specifications contained in the guidelines and the budget on the organization of the CHOGM. To fulfill that objective, the government through the Ministry of Finance, Planning and Economic Development provided around UGX 300 billion (USD 100 million) for hosting the CHOGM.<sup>22</sup> The Ministry of Local Government was assigned the responsibility for the beautification of the Kampala-Entebbe road corridor. The purpose was to improve the road corridor reserve and the general ambience of Kampala city and Entebbe municipality. Effective interventions started in June 2007. The total amount of money that was allocated and released to the Ministry of Local Government to cater for the beautification of Kampala amounted to UGX 6,327,568,145 (approximately USD 3 million). Part of this included extra funds for, among others things, upgrading waste management services. Other activities in line with the beautification of Kampala included installing security lights, repairing roads and pedestrian walkways, working on pavements and drainages, beautification of parks and open spaces, landscaping and greening the road reserves, removal of kiosks, planting trees and grass, and removal of signage and unsightly structures.

As already highlighted, SWM was a key component of the beautification of Kampala. In fact, the KCC received budget support from the National CHOGM Preparatory Fund through the Ministry of Local Government for solid waste management. Contracts worth US\$ 193,964,521 (approximately USD 100,000) were made with four garages for the repair of refuse trucks in an attempt to boost the garbage collection exercise ahead of the CHOGM meeting.<sup>23</sup> These additional funds were related, but not limited, to: refuse collection from generation and storage points and transportation to the disposal site; implementation of acceptable standards; provision and maintenance of personnel, vehicles, containers and other equipment for solid waste management service; design and implementation of a billing and revenue collection system (for all categories of clients); ensuring adequate cost recovery and sustainability of the service; publicity, sensitization, and marketing of the service; and assistance in enforcement and compliance with the solid waste ordinance.

The city's five divisions also received UGX 6,000,000 (approximately USD 3000) per month from June 2007 to December 2007.<sup>24</sup> In total about UGX 400 million (USD 200,000) was spent on SWM related services for the CHOGM preparations. This amount was in addition to the KCC annual budget for SWM of around UGX 1.4 billion (USD 600,000).<sup>25</sup> Before CHOGM, neither KCC nor the central government released any money to the districts for solid waste management. KCC (the employer) on behalf of the five Kampala divisions also initiated sealed bids from eligible bidders for the execution of solid waste management services around CHOGM. For these so-called CHOGM contracts, the bidding document was prepared, based on the government of Uganda's Public Procurement and Disposal of Public Assets Act, 2003. The method of procurement was by National Competitive Bidding (NCB). The invitation for bids was open to eligible bidders from eligible countries. An invitation for bids was advertised in the main national newspapers.

According to the Public procurement and Disposal Compliance Check Report, the Ministry of Local Government and the Ministry of Works and Transport handled CHOGM procurements in the areas of beautification, roads, drainage, street lighting, and toilets, of which solid waste management was a key component.<sup>26</sup> KCC took part in the evaluation process of the solid waste tenders. The companies contracted to manage solid waste collection and transportation in the two investigated divisions were: Nabugabo, TERP Group and ESCOM joint venture in Kampala Central division, and Hilltop Enterprises and NOREMA in Kawempe division. The providers were directly paid by the Ministry of Local Government for these CHOGM contracts, which ran from June 2007 to November 2007.

As already noted above, as part of the beautification of Kampala, KCC advanced extra funds for fuel and the Ministry of Local Government for repairing of KCC trucks. Fuel, a key ingredient in solid waste management, was sufficiently available during CHOGM to transport garbage to the dump site, while it was often not sufficiently available before CHOGM. After CHOGM, the amount of fuel allocated to KCC refuse trucks again became scarce. On average 990 liters of diesel was allocated monthly for KCC refuse trucks after CHOGM, compared to approximately 4500 liters which was claimed KCC needed, resulting in underutilization of both the trucks and workers.

Efforts were made to involve as many public and private stakeholders as possible in solid waste management around CHOGM. The central and local government worked together harmoniously, unlike before CHOGM. In addition, community-based organizations (CBOs), non-governmental organizations (NGOs) and other private sector organizations were actively involved. A formal contract was negotiated between the Ministry of Local Government and the private sector through the KCC. Several meetings with private sector stakeholders resulted in the formation of the Kampala Solid Waste Management Association, whose objectives were to cooperate with government to improve solid waste management practices such as carrying out sensitization and publicity with respect to keeping Kampala clean. It remains to be seen whether these improvements lasted well after the event.

### **Data and Methods of Investigation**

To investigate whether major political events in developing countries construct positive environmental legacies, we analyzed solid waste management improvements during and after the Commonwealth Heads of Government meeting (CHOGM) in Kampala. Through a quantitative survey, urban citizens of Kampala were asked about their satisfaction with the

way solid waste collection and transportation was organized and implemented. Several studies existed where the level of satisfaction enjoyed by residents on the various attributes of urban services were determined through such ratings.<sup>27</sup> Purposive sampling was used because we had to verify that the respondent met the criteria for being in the sample. To be selected for the study, a respondent should have stayed in Kampala city and in the same place of residence since the beginning of 2006 until one year after CHOOGM. Respondents were selected from two (out of five) pre-selected Kampala divisions: Kawempe Division and Kampala Central Division. Kampala Central Division is the major business district, is at the center of Kampala, also has poor slum areas, and was the location of most of the CHOOGM events. Kawempe Division is at some distance from the city center, has a mixed population and was less central as a location for CHOOGM events.

Data collection took place through a (mostly) structured and self-completion questionnaire, using a five-point Likert scale for the closed questions. Self-completion of the questionnaire was meant to make sure that we interviewed the right people who have lived in Kampala since 2006 and therefore were knowledgeable about the (changing) state of solid waste management in the city over the years. But self-completion of the questionnaire also made sure that the respondents understood the questions and that no bias occurred in terms of illiteracy or education level.

Survey interviews were carried out in two rounds. The first round was carried out in March 2008 (only four months after CHOOGM), and the second round of interviewing was carried out in October 2008 (one year after CHOOGM). During the first round of interviewing, questions were asked on the perceived solid waste management situation before CHOOGM (early 2006), during CHOOGM (November 2007), and four months after CHOOGM (March 2008). During the second round of interviewing, respondents were asked how they felt about the solid waste management situation in early 2006, November 2007, March 2008, and October 2008 (one year after CHOOGM). A total of 500 respondents were randomly selected in the first round (March 2008), of which 454 respondents answered the questionnaire. In the second round (October 2008), 447 respondents were randomly selected and 410 questionnaires were returned. To ensure representativeness, we followed a stratified random sampling strategy, in which random sampling of respondents in the parishes selected involved targeting all income groups (neighborhoods) and areas near and far away from where the CHOOGM event was held. If the sampled respondent was not available or not interested or not part of the target group (those who had not come to Kampala two years before the CHOOGM event), we would move to the next random sampled respondent in that cluster.

In addition to the survey, monthly data were collected of recorded solid waste mass brought to the central Mpererwe Sanitary Landfill during 2006–2008 and also for 2009 and early 2010. Formal and informal in-depth face-to-face interviews were held with five KCC officials, ten division officials, and fifteen licensed service providers. Other techniques of data collection included document review, especially official letters, policy documents, and correspondence. This material was later used to interpret survey results.

Data analysis centered around the assessment of the (temporal/semi-permanent) effects of CHOOGM on solid waste management, measured through the perceptions of urban residents. In addition, geographical differences were analyzed between the Central Division and Kawempe Division, in relation to the distance from the CHOOGM event. The data were analyzed using percentages and non-parametric tests: Wilcoxon signed rank test and Wilcoxon-Mann-Whitney test. The test was used to determine whether there is a significant

difference in median littering and illegal piles of solid waste, nuisance from solid waste transfer points, smell of solid waste, solid waste collection from enterprises, and street sweeping before CHOGM, during CHOGM, and after CHOGM.

Before moving to the results, we first report on a test whether results are affected by recall bias or by time differences between the first and second surveys. We checked whether the respondents of the first survey in March value the quality of the environment four months after CHOGM the same as the respondents of the second survey in October value the quality of the environment four months after CHOGM. For this the Wilcoxon signed rank test was used. The low Z values and p-values  $> 0.05$  in Table 1 below show that the first survey respondents' value of the solid waste management situation four months after CHOGM is not statistically different from how the second survey respondents value the solid waste management situation four months after CHOGM. This implies that questionnaire results have not been affected by a recall bias or by time differences.

**Table 1: Recall bias between first and second survey for solid waste management four months after CHOGM, using Wilcoxon signed rank test**

	Z-value	P-value
Littering & illegal piles of waste	0.059	0.953
Nuisance from solid waste transfer points	-0.234	0.815
Smell of solid waste	-0.228	0.820
Solid waste collection from households	0.053	0.958
Solid waste collection from enterprises	-0.084	0.933
Street sweeping	0.645	0.519

Since respondents of the first survey value the quality of the environment the same as the respondents in the second survey, we analyzed them together. Both Kawempe and Central divisions are put together. In other words we pool across locations and across surveys.

## Research Findings

The information collected from the above research methodology is discussed under the various sub-headings below.

### *Perceptions of Solid Waste Management Practices and Environmental Effects Before, During, and After CHOGM*

The questionnaire that was administered addressed solid waste management practices and environmental effects before, during, and after CHOGM. Six indicators were used, measured by the perceptions of residents: littering and illegal piles of solid waste, nuisance of solid waste transfer points, smell of solid waste, solid waste collection from households, solid waste collection from enterprises, and street sweeping.



The perceptions of all respondents in the two Kampala divisions are compared between, before, and during CHOGM on six solid waste items, using the Wilcoxon signed rank test. The results indicate that the median value of the six variables for the period before CHOGM are statistically significantly ( $P < 0.001$ ) different from those during CHOGM.  $Z$  is a measure of the magnitude of the effect; the larger  $Z$  the larger the difference of the values between “before” and “during” CHOGM. Hence, for all variables solid waste management during CHOGM was better than solid waste management before CHOGM, according to the respondents (see Table 2 below).

We also compared perceptions of solid waste management during CHOGM with solid waste management four months after CHOGM. The results indicate that the median value of all six variables during CHOGM are statistically significantly ( $p < 0.001$ ) different from those after CHOGM (see Table 2 below). This means that there was significantly better solid waste collection and less related environmental nuisance during CHOGM, compared to solid waste collection and solid waste nuisance four months after CHOGM. The considerable amount of money and resources advanced to KCC for the cleanup of Kampala, referred to as the “rescue garbage collection operation,” did give positive solid waste management and environmental effects during CHOGM.

To analyze solid waste management legacies of CHOGM we compared the solid waste management situation before CHOGM with the solid waste management situation after CHOGM. Without any lasting environmental legacy the situation before and after CHOGM would be similar in terms of perceived solid waste management. The results indicate that the median value for the six solid waste variables for before and four month after CHOGM are statistically ( $p < 0.001$ ) different. In other words, the state of solid waste management before and four months after CHOGM is statistically different, with better functioning solid waste management and less environmental effects four months after CHOGM than before. This first indication of a solid waste management legacy of the 2007 CHOGM major event is further strengthened by taking a larger time span of one year for investigating post-CHOGM effects. The median values of the six solid waste management variables for the period before CHOGM are statistically significantly ( $p < 0.001$ ) different from those one year after CHOGM (see Table 2). This implies that one year after CHOGM solid waste management was still significantly better than before CHOGM. Or to put it differently: solid waste management improvements achieved during (and because of) CHOGM did become institutionalized to some extent and lasted well beyond this major event.

**Table 2: Results of Wilcoxon signed rank test for before CHOGM, during CHOGM and after CHOGM**

Variables	A		B		C		D	
	N	Z	N	Z	N	Z	N	Z
Littering and illegal piles of waste	858	25.264***	860	-22.596***	857	22.198***	409	7.899***
Nuisance from solid waste transfer points	857	24.740***	858	-21.610***	856	22.472***	410	5.377***
Smell of solid waste before privatization	857	24.894***	856	-22.042***	853	21.622***	408	6.849***
Solid waste collection from households	852	18.729***	850	-13.039***	848	15.627***	447	6.006***
Solid waste collection from enterprises	851	17.202***	855	-12.274***	851	14.536***	402	4.102***
Quality of street sweeping	847	16.616***	848	-12.753***	844	13.283***	406	4.305***

\*\*\* All the Z – values were significant at 5% level of significance

### *Assessment of Environmental Legacy Institutionalization*

Is this environmental legacy fully institutionalized and thus constant over time? In order to measure whether the positive CHOGM effect wears down or stays constant over time the Z values (a measure of the magnitude of the effect) of “before CHOGM–four month after CHOGM” need to be compared with the Z values of “before CHOGM–one year after CHOGM.” Table 3 below shows that the Z values “before CHOGM–one year after CHOGM” are lower than those of “before CHOGM–four month after CHOGM.” Since the Z values here represent the degree of disparity between before and after CHOGM it can be concluded that solid waste management practices four months after CHOGM were better than those one year after CHOGM. The fact that over time Z values are declining for all variables implies some erosion of the CHOGM-effect. Obviously, CHOGM-induced improvements have not been fully institutionalized in solid waste management. However, still, one year after CHOGM, solid waste management remained significantly better than before CHOGM. These findings are consistent with collected solid waste data recorded at the Mpererwe Sanitary Landfill. During January–October 2006 the average monthly amount of solid waste brought to the landfill was 13,817 tons. In the ten months directly preceding CHOGM (January–October 2007) this average monthly amount increased to 18,961 tons of solid waste, to decrease to an average monthly amount of 16,685 tons of solid waste for the

months January–October 2008 (after CHOGM). The amount of solid waste recorded at the Mpererwe Sanitary Landfill increased slightly to an average monthly 17,113 for the months November 2008–September 2009. It increased further to an average monthly 19,154 for the months of October 2009–March 2010.

**Table 3: Comparing the Z values from the Wilcoxon signed rank test ‘for before – four month after CHOGM’, and ‘before CHOGM – one year after CHOGM’ (N=410, 2<sup>nd</sup> survey)**

	Z-values* (2 <sup>nd</sup> survey)	
	Before and four months after CHOGM	Before and one year after CHOGM
Littering & illegal piles of waste	14.059	7.899
Nuisance from solid waste transfer points	12.370	5.377
Smell of solid waste	12.679	6.849
Solid waste collection from households	9.868	6.006
Solid waste collection from enterprises	8.255	4.102
Street sweeping	9.974	4.305

\* All the z-values were significant at 5% level of significance

How to explain this environmental legacy of CHOGM and the watering down of that legacy? In our in-depth interviews we came across three reasons that contribute to an explanation for this legacy. First, the office of the solid waste engineer was institutionalized in all divisions in Kampala to handle the day to day business of solid waste collection. Before CHOGM, solid waste management was handled by health inspectors at the division level, and even then the posts were vacant in most of KCC divisions. The medical department did not give solid waste management much priority due to the urgent and highly demanding health care responsibilities of the divisions.<sup>28</sup> The fact that separate solid waste management offices were created formed a good start for institutionalizing solid waste management at the division level, while it was formerly only articulated as such at the city level by KCC. Division solid waste management engineers, for example, began to streamline activities to ensure that CHOGM standards were maintained. The fact that some divisions are copying best practices learnt from CHOGM, such as transparent procurement processes and zoning of divisions, is related to the establishment of the division solid waste management offices. But there is also constant (political) opposition. A case in point is Kawempe Division, where a solid waste management committee was established to manage private contractors around and after CHOGM. This effort was frustrated by politicians engaged with the NOREMA and Hilltop private companies, which both had signed a memorandum of understanding with Kawempe Division to collect and transport waste without any competition from other service providers.

Second, relations between KCC and the five divisions have been improving. The evidence here is that KCC supplements the divisions’ finances to improve the collection and

transportation of garbage, a process that started with CHOGM. After CHOGM, KCC disbursed a sum of UGX seven to twelve million (USD 4000 to 6500) per month to the four divisions (except the Central Division which is perceived to be richer in resources by KCC) for solid waste collection and transportation. Although, money transfer is sometimes delayed, with substantial consequences for solid waste management, this delegation of solid waste management resources and authority to the division works better than the centralized process before CHOGM.

Third, the new equipment and vehicles acquired especially by the private sector contractors in the months leading to CHOGM (in anticipation of money from the National CHOGM Preparatory Fund) enlarged their capacity and improved service, also in areas further away from the city. Compactor trucks, though allegedly disadvantageous, were purchased by NOREMA and Nabugabo Updeal Joint Venture for serving Kawempe Division and were still in operation one year after CHOGM. Residents have also noted an improvement in the way garbage is transported to the dump site. KCC vehicles that were not functioning before CHOGM were repaired and this boosted the garbage collection exercise after CHOGM. These material improvements, caused by additional CHOGM budgets, contributed to positive environmental legacies well after CHOGM.

But there were also institutional discontinuities after CHOGM. For instance, the Kampala Solid Waste Management Association, formed just before CHOGM, became inactive four months after CHOGM and never met to put into practice what they had agreed to achieve, according to members of the association. Public and private sector sensitization and publicity with respect to keeping Kampala clean subsided a bit. And most importantly, the central government provided less attention and resources to solid waste management after CHOGM. The KCC and its divisions have taken full responsibility for solid waste management again with little central government support, quite comparable to the situation before CHOGM. Most of the so-called CHOGM contracts with private waste collectors were not continued under the same (favorable) conditions after CHOGM.

### *Geographical Differentiation of Environmental Legacies*

As mentioned earlier, the two Kampala divisions were selected especially due to the geographical differences between them vis-à-vis the CHOGM location. To examine whether CHOGM impacts on solid waste management in the Central Division differed significantly from those in Kawempe Division, the Wilcoxon-Mann-Whitney test was used. The results show that differences between people's perception of solid waste management between the two divisions are only statistically significant before CHOGM. Only for one variable (smell of solid waste) can a difference be noted during CHOGM and one year after CHOGM ( $p < 0.05$ ). This means that significant differences in the status of solid waste management between the divisions existed before CHOGM. But, during and up until one year after CHOGM overall significant differences between them are not observable. This implies that CHOGM had a leveling effect. While originally the differences were big, CHOGM leveled that difference.

### *Impact on Geographical Distance with Respect to CHOGM Location*

To determine the impact of geographical distance with respect to CHOGM, divisions are not a very precise categorization. There are areas in Kampala Central that are far away from the

city center (and from the CHOGM events), and there are areas in Kawempe Division, such as Makerere University and Wandegaya, that are near to the CHOGM site. In order to determine more precisely the effect of distance, the respondents of both divisions were re-categorized as those living close to where CHOGM events took place and those living far away from CHOGM events. Again, a Wilcoxon-Mann-Whitney test was used to compare both categories of respondents.

The results show that for before CHOGM, during CHOGM, and one year after CHOGM there are statistically significant differences ( $p < 0.05$ ) between people's perception of solid waste management between areas close to the CHOGM event location and areas far away from it (see table 4 below). This means that solid waste management differs between areas close to CHOGM and areas far away from CHOGM. However, some striking differences are observed between the three points in time. For example, the Z values before CHOGM are higher than those during CHOGM in all the six variables of waste management. This implies that before CHOGM there was a large disparity between areas close to and far away from CHOGM as far as solid waste management is concerned. This disparity substantially diminished during CHOGM. However, one year after CHOGM the disparity is gaining momentum again as depicted by the increasing Z-values for all solid waste management variables (except solid waste collection from enterprises; see Table 4 below). It can also be noted that in some aspects of solid waste management, the disparity has increased to levels higher than it was before CHOGM (e.g. street sweeping). Overall if we compare parishes close to CHOGM with those located far away from CHOGM, the leveling effect of CHOGM seems to fade away one year after CHOGM. According to KCC officials, this might be explained by the fact that due to a growing scarcity of government funding, private companies concentrate on areas that are densely populated and rich (those closer to the CHOGM areas). The richer parishes pay more, and contractors enjoy economies of scale in densely populated areas as compared to areas far away from the CHOGM location, which have scattered homesteads.

**Table 4a and 4b: Results of the Two-sample Wilcoxon rank sum test depicting the differences in solid waste management between Central division and Kawempe division around CHOGM & also between areas close to and areas far away from CHOGM**

**Table 4a:**

Variables	A		
	Two-sample Wilcoxon rank sum test depicting the differences in solid waste management between Central division and Kawempe division around CHOGM		
	Before CHOGM	During CHOGM	One year after CHOGM
Littering and illegal piles of waste	4.031 (0.000)	1.499 (0.134)	1.556 (0.120)
Nuisance from solid waste transfer points	5.113 (0.000)	0.468 (0.640)	1.215 (0.224)
Smell of solid waste before privatization	3.665 (0.000)	3.665 (0.000)	2.350 (0.019)
Solid waste collection from households	5.168 (0.000)	-0.261 (0.794)	2.405 (0.016)
Solid waste collection from enterprises	2.742 (0.006)	-0.560 (0.576)	0.349 (0.727)
Quality of street sweeping	3.849 (0.000)	-1.432 (0.152)	1.527 (0.127)

**Table 4b:**

Variables	B		
	Two-sample Wilcoxon rank sum test depicting the differences in solid waste management between areas close to and areas far away from CHOGM		
	Before CHOGM	during CHOGM	One year after CHOGM
Littering and illegal piles of waste	9.488 (0.000)	2.206 (0.027)	4.400 (0.000)
Nuisance from solid waste transfer points	10.011 (0.000)	1.712 (0.087)	7.852 (0.000)
Smell of solid waste before privatization	8.951 (0.000)	2.248 (0.025)	4.841 (0.000)
Solid waste collection from households	11.510 (0.000)	1.709 (0.000)	12.624 (0.000)
Solid waste collection from enterprises	9.779 (0.000)	8.325 (0.000)	3.438 (0.000)
Quality of street sweeping	10.910 (0.000)	7.839 (0.000)	13.446 (0.000)

A - (Z values; p values between brackets; 2<sup>nd</sup> survey, N=410); B - (Z values; p values between brackets; 2<sup>nd</sup> survey, N=410)

It can be concluded that CHOGM, as a major event, had a leveling effect between Kawempe and Central Divisions that lasted for at least a year. The leveling effect of CHOGM lasted shorter between areas nearby and areas far away from the CHOGM locations. This suggests that innovations of CHOGM or new standards to some extent spread across Kampala city. This might be explained by the sensitization campaigns through various media during CHOGM. Poorer areas seemed to have learned how to better manage their garbage, even when KCC and the private collectors do not reach them. From interviews conducted and through observations, it was revealed that most people living in areas far away from the CHOGM locations have learned to burn the garbage and some have now their own “incinerators.” In places like Katanga in Kawempe Division, near Makerere University, the community started to become self-organized in cleaning the area, and it appears to be working well. This community initiative started immediately after CHOGM and remained very popular according to interviews with the locals and opinion leaders in the area. It is also worth noting that the new equipment of private collectors enabled them to reach areas that were formerly poorly or not served and that transportation capacity was still large one year after CHOGM. For example private contractors, notably NOREMA and Nabugabo Updeal Joint Venture, acquired compactor trucks that are able to load more garbage than the tipper trucks that they were previously using.

## Conclusions

Although CHOGM was not a mega-event (in terms of massive infrastructure construction, masses of people attending, and intense global media coverage), for Uganda and Kampala it was a major event with international visibility. Hence, significant efforts were made by the Uganda and Kampala authorities to invest in the city on the road toward CHOGM 2007. Solid waste management was one of the main areas that received additional resources and faced institutional changes. This resulted in considerable improvements in solid waste management practices and effects during CHOGM, as could be expected. But there are still clear positive solid waste management legacies one year after hosting a major event like CHOGM, related to, among others, new institutional arrangements and material improvements.

As solid waste management often differs throughout metropolitan cities in developing countries and major events are not equally spread over these cities, one can expect that environmental legacies are unequally distributed over the city. Following CHOGM, we found that there are no longer significantly different perceptions in solid waste management between Central and Kawempe Divisions. Both are perceived as equally clean (or equally dirty), suggesting that solid waste management innovations are gradually spreading across divisions. In a more fine-tuned comparison between citizens living close to places where the CHOGM events took place and locations more peripheral to CHOGM, the distinction in solid waste management started to fade somewhat during CHOGM, but there are signs of a reemerging distinction, indicating the erosion of leveling effects. This does not, however, dispute the fact that one year after CHOGM, solid waste management was perceived to be still significantly better than before CHOGM. Hosting cities, including those in developing countries, can secure positive future environmental effects of major events up until at least one year after the event concludes. What happens after one year needs further study. One could speculate that at least some of the institutional innovations that were installed through CHOGM will continue to contribute to positive environmental legacies. Compared to mega-

events such as the 2010 soccer World Cup, however, major events such as CHOGM lack major infrastructural works and a truly global audience, thus limiting their environmental legacies in the further future.

## Notes

- 1 See Owusu, et al., 2010; Baudouin et al., 2010; Kaseva, et al., 2005; Karanja, 2005; Awortwi, 2004; Spaargaren, et al., 2005; Golooba-Mutebi, 2003; Tukahirwa et al., 2011; Okot-Okumu et al., 2011.
- 2 Obirih-Opareh et al., 2002; Post et al., 2003; Tukahirwa et al., 2011; Baud, 2004; Tukahirwa, et al., 2010; Baudouin, et al., 2010; Karanja, 2005; Tukahirwa et al., 2010.
- 3 Roche, 1994, p. 1.
- 4 Horne & Manzenreiter, 2006.
- 5 Gold & Gold, 2008.
- 6 Pillay et al., 2008.
- 7 World Bank, 2009.
- 8 Auditor General, 2008.
- 9 Impacts 08 – Langen & Garcia, 2009.
- 10 See Hall, 1992; Hiller, 1998.
- 11 Pillay et al., 2008; Andranovich et al., 2001; Lenskyj, 2000.
- 12 Pillay et al., 2008.
- 13 Hiller et al., 2000, p. 440.
- 14 Lindell, 2010
- 15 Pillay et. al, 2009.
- 16 e.g., Hiller 1998, 2000; Teigland, 1999; Moragas Spa, Kennett and Puig, 2003; Roche, 2006; Cratton et al., 2006; Impacts 08 – Langen & Garcia, 2009.
- 17 Schimmel, 2006; Mason & Beaumont-Kerridge, 2004; Hayes and Karamichas, 2006.
- 18 Karamichas, 2007; Close, Askew and Xin, 2007; Collins et al., 2009; Raj and Musgrave, 2009; Mol, 2010.
- 19 Mol, 2010.
- 20 KCC, 2006.
- 21 Tukahirwa et al., 2010.
- 22 Auditor General, 2008.
- 23 Auditor General, 2008.
- 24 Auditor General,2008.
- 25 KCC, 2006.
- 26 KCC, 2007.
- 27 Afon, 2007; Anand, 1999.
- 28 KCC, 2002.

## References

Afon, Abel O. 2007. "Informal Sector Initiative in the Primary Sub-system of Urban Solid Waste Management in Lagos, Nigeria." *Habitat International* 31: 193-204.



- Anand, Prathivadi. 1999. "Waste Management in Madvas Revisited." *Environment and Urbanization* 11: 161-76.
- Andranovich, Greg, Mathew J. Burbank, & Charles H. Heying. 2001. "Olympic Cities: Lessons Learned from Mega-event Politics." *Journal of Urban Affairs* 23.2: 113-31.
- Auditor General. 2008. Special Audit on Commonwealth Heads of Government Meeting (CHOGM) Expenditure. Kampala: Office of the Auditor General.
- Awortwi, Nicholas. 2004. "Getting the Fundamentals Wrong: Woes of Public-Private Partnerships in Solid Waste Collection in Three Ghanaian Cities." *Public Administration and Development* 24: 213-324.
- Baud, Issa, Johan Post, and Christine Furedy (eds). 2004. *Evolving Partnerships in the Collection of Urban Solid Waste in the Developing World* 76. Springer, Netherlands: The Geo-Journal Library.
- Baudouin, Axel, Camilla Bjerkli, Habtemariam Yirgalem, and Chekole Zelalem Fenta. 2010. "Between Neglect and Control: Questioning Partnerships and the Integration of Informal Actors in Public Solid Waste Management in Addis Ababa, Ethiopia." *African Studies Quarterly* 11. 2 & 3: 29-42.
- Close, Paul, David Askew, and Xu Xin. 2007. *The Beijing Olympiad: The Political Economy of a Sporting Mega-event*. London: Routledge.
- Collins, Andrea, Collins Jones and Max Munday. 2009. "Assessing the Environmental Impacts of Mega Sporting Events: Two Options?" *Tourism Management* 30. 6: 828-37.
- Gold, John R., and Margaret M. Gold. 2008. "Olympic cities: Regeneration, City Rebranding and Changing Urban Agendas." *Geography Compass* 2.1: 300-18.
- Golooba-Mutebi, Fredrick. 2003. "Devolution and Outsourcing of Municipal Services in Kampala City, Uganda: An Early Assessment." *Public Administration and Development* 23: 405-18.
- Hall, Colin M. 1992. *Hallmark Tourist Events: Impacts, Management, and Planning*. London: Belhaven Press.
- Hayes, Joseph G., and John Karamichas (eds). 2006. *Mega-events and Civil Societies: Environment and Globalization, Accommodation and Resistance*. London: Palgrave-Macmillan.
- Hiller, Harry H. 1998. "Assessing the Impact of Mega-Events: A Linkage Model." *Current Issues in Tourism* 1.1: 47-57.
- \_\_\_\_\_. 2000. "Mega-Events, Urban Boosterism and Growth Strategies: An Analysis of the Objectives and Legitimations of the Cape Town 2004 Olympic Bid." *International*

*Journal of Urban and Regional Research* 24. 2: 449-58.

Impacts 08 - Langen, Floris, and Beatriz Garcia. 2009. *Measuring Impacts of Cultural Events*. University of Liverpool.

Horne, John, and Wolfram Manzenreiter. 2006. "An Introduction to the Sociology of Sports Mega-events." *The Sociological Review* 54. 2: 1-24.

Kampala City Council. 2002. *Kampala Solid Waste Management Strategy*. Kampala: MLG.

\_\_\_\_\_. 2006. *Kampala Solid Waste Management Strategy*. Kampala: MLG.

\_\_\_\_\_. 2007. *Public Procurement and Disposal Compliance Check Report*. Kampala: Kampala City Council, Public Procurement and Disposal of Public Assets Authority.

Karamichas, John. 2007. "Olympic Games as an Opportunity for the Ecological Modernization of the Host Nation." Paper presented at the European Sociological Association Conference, Glasgow, 3-6 September.

Karanja, Anne. 2005. "Solid Waste Management in Nairobi: Actors, Institutional Arrangements and Contributions to Sustainable Development." Ph.D. thesis, Development Studies, Institute of Social Studies, The Hague, The Netherlands.

Kaseva, Mengiseny E., and Stephen E. Mbuligwe. 2005. "Appraisal of Solid Waste Collection Following Private Sector Involvement in Dar es Salaam City, Tanzania." *Habitat International* 29,: 353-66.

Lenskyj, Helen Jefferson. 2000. *The Best Olympics Ever? Social Impacts of Sydney 2000*. Albany: State University of New York Press.

Lindell, Ilda. 2010. "Between Exit and Voice: Informality and the Spaces of Popular Agency." *African Studies Quarterly* 11. 2 &3: 1-11.

Mason, Peter and John Beaumont-Kerridge. 2004. "Attitudes of Visitors and Residents to the Impacts of the 2001 Sidmouth International Festival." In I. Yeoman, M. Robertson, J. Ali-Knight, S. Drummond, and U. McMahon-Beattie (eds.). *Festival and Events Management: An International Arts and Culture Perspective*. Oxford: Elsevier Butterworth-Heinemann.

Mol, Arthur P.J. 2010. "Sustainability as Global Attractor: The Greening of the 2008 Beijing Olympics." *Global Networks* 10.4: 510-28.

Moragas, Spa de, Miquel, Chris Kennett, and Nuria Puig (eds). 2003. *The Legacy of the Olympics Games 1984–2000*. Lausanne: IOC.

Pillay, Udesch & Bass Orli. 2008. "Mega-events as a Response to Poverty Reduction:

The 2010 FIFA World cup and its Urban Development Implications." *Urban Forum* 19: 329-46.

\_\_\_\_\_, Richard Tomlinsom, and Orli Bass (eds). 2009. *Development and Dreams: The Urban Legacy of the 2010 Football World Cup*. Cape Town: HSRC Press.

Post, Johan, and Nelson Obirih-Oporeh. 2003. "Partnerships and the Public Interest: Assessing the Performance of Public-Private Collaboration in Solid Waste Collection in Accra." *Space and Polity* 7.1: 45-63.

Raj, Razaq, and James Musgrave (eds). 2009. *Event Management and Sustainability*. Oxfordshire: CABI.

Roche, Maurice. 1994. "Mega-Events and Urban Policy." *Annals of Tourism Research* 21: 1-19.

\_\_\_\_\_. 2006. "Mega-events and Modernity Revisited: Globalization and the Case of the Olympics." *Sociological Review* 54. 2: 24-40.

Schimmel, Kimberly S. 2006. "Deep Play: Sports Mega-events and Urban Social Conditions in the USA." *Sociological Review* 54. 2: 160-74.

Spaargaren, Gert, Peter Oosterveer, J. Van Bureen, and Arthur. P. Mol. 2005. "Mixed Modernities: Towards Viable Urban Environmental Infrastructure. Development in East Africa." Environmental Policy Group, Wageningen University.

Okot-Okumu, James. 2011. "Municipal Solid Waste Management Under Decentralization in Uganda." *Habitat International* 35: 537-43.

Obirih-Oporeh, Nelson, and Johan Post. 2002. "Quality Assessment of Public and Private Modes of Solid Waste Collection in Accra, Ghana." *Habitat International* 26: 95-112.

Owusu, George, and Robert Lawrence Afutu-Kotey. 2010. "Poor Urban Communities and Municipal Interface in Ghana: A Case Study of Accra and Sekondi Takoradi Metropolis." *African Studies Quarterly* 12.1: 1-16.

Teigland, Jon. 1999. "Mega-events and Impacts on Tourism: The Predictions and Realities of the Lillehammer Olympics." *Impact Assessment and Project Appraisal* 17: 305-17.

Tukahirwa, Judith, Arthur. P. J. Mol, and Peter Oosterveer. 2010. "Civil Society Participation in Urban Sanitation and Solid Waste Management in Uganda." *Local Environment* 15. 1: 1-14.

\_\_\_\_\_. 2011. "Access of Urban Poor to NGO/CBO-supplied Sanitation and Solid Waste Services in Uganda: The Role of Social Proximity." *Habitat International* 35: 582-91.

World Bank. 2009. *World Development Indicators Data Base*. Washington, DC.