Privatisation of Solid Waste Management Service: Practices in Developing Countries

MSc Thesis

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For quality of life

Front cover : Solid waste collection in Dar es Salaam, Jakarta and Kuala Lumpur

Source : Kassim and Ali (2006); Indonesia Infrastructure News (2013) and Eco-Ideal (2013)

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Privatisation of Solid Waste Management Service : Practices in Developing Countries

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Abstract

Privatisation of urban solid waste management has getting more popular the last few years in developing countries. The study focus on analysing the main drivers of solid waste management privatisation, the factors contributing to the selection of different privatisation models by city governments and the different impacts of solid waste management privatisation on the city.

Using new institutional economics approach and secondary data from literature research to analyse the cases, the study aims to develop propositions which could contribute to the existing literature on solid waste management privatisation. A maximum variation sampling is used to verify the conceptual model developed and to reflect differences between cities studied. Following an inductive case study based on "grounded theory" approach, we analysed seven city cases which have privatise their solid waste management since 1990s and spread within Asia, Africa and Latin America.

The analysis leads to the following results. First, exogenous drivers such urban population growth and economic growth are the most dominant exogenous drivers. Second, the lack of public sector capability in human capital, technical capability and hierarchical bureaucracy are found to be the main endogenous drivers within the seven cities. Third, among factors which influence privatisation model selection, political situation, bureaucracy, and corruption among city actors play the dominant role. Finally, the study highlights that different model of solid waste management privatisation brought different level of impacts on city's livelihood. Given the explanatory nature of the grounded theory approach, further researches to provide stronger evidence to test the propositions are needed.

Keyword: *privatisation*, *solid waste management, new institutional economics*

I. Introduction

Over the past few years, an increasing number of people have moved to urban areas. The United Nations (UN) have predicted that by 2030, there would be more people living in urban areas than in rural areas even in Asia and Africa, where most of the population currently live in rural areas (UN-HABITAT, 2010b). As urban populations grow worldwide, more and more waste will be generated, thus solid waste management has become a pressing issue. In respect to public health issues, waste has been a major concern in cities for many years. When left unattended in open spaces without treatment, waste can be a source of nuisance and disease (Rodic, 2011).

According to Coffey & Coad (2010), the average rate of waste in developing countries is between 0.2-0.4 kg/capita/day, though this number may vary greatly between and within cities. Though up to 1% of Gross National Product (GNP) and 20-40% of municipal revenues in developing countries are is dedicated to solid waste management, the services are frequently inadequate (Coffey & Coad, 2010).

A recent trend suggests that some cities have decided to partner with the private sector in order to cope with a lack of capacity. The UN mentioned that involving the private sector in service delivery is an option that local governments should take into consideration if they want to improve cost-effectiveness, quality and coverage (UN-HABITAT, 2010a). Partnering with the private sector with the aim of achieving a more efficient waste management is often seen as a strategic element solid waste management (Johnston & Seidenstat, 2007). Involving the private sector in waste management services seen as opportunity to mobilise private sector investment and introduce efficiency in some developing countries (Cointreau-Levine, 1994).

However a clear understanding of the circumstances in which privatisation can be considered as a valid solution to solid waste management is lacking. Even if several models of privatisation have been carried out by many cities, there is still little information available on how these models have been implemented. For example, why did the Malaysian authorities decide to use concession-agreement for their solid waste collection? And why micro-franchising is more popular in Dar es Salaam while not in Nairobi or Kampala?

Most research on solid waste management has been done using a case study approach as it depicts the variable local conditions of each area. Large scale studies with a world-wide scope of research area remain to be done by large organisations like the UN-HABITAT or the World Bank. Therefore the focus of this research is on indicating the drivers of solid waste management privatisation in developing cities and comparing those different practices using a number of case studies. From a conceptual perspective the comparison have to be done mainly using approaches rooted in the domain of New Institutional Economics .

This type of research has two main objectives. On the one hand it aims at understanding the drivers in the privatisation of solid waste management and the different organisational modes used by cities in South-east Asia, Africa and Latin America. On the other hand it aims at understanding whether solid waste management privatisation has had a positive impact on these cities. This study is conducted using inductive case studies and it is based on a "grounded theory" approach (Eisenhardt, 1989). Using a broad scale of literature studies, the research ends with propositions based on the data collected. Propositions are

made in order to bridge the gap of knowledge on the drivers, the most influencing factors in city actors' decision making and the impacts of solid waste management privatisation.

II. Research motivation and initial research questions

In this section research motivation and questions are briefly presented and discussed.

Why Developing Countries?

According to the analytical classification of World Bank (1978), developing countries are countries which are categorised as low-income and middle-income countries. World Bank categorisation on income level categorises a country as a developing country when they have an average Gross National Income (GNI) per capita below US$ 12,195 in 2009 (Nielsen, 2011). Using this categorisation, most countries are located in Asia, Africa and South America. Therefore, this research will focus on cities which have GNI lower than US$ 12,195 in 2009 and located in Asia, Africa and Latin America.

Most developing countries are struggling in providing better public services for its people. The high rate of urbanisation and economic growth within developing countries leads to higher production of global solid waste in the last 10 years (Courtois, 2012). In developing countries, besides the budgetary problem to tackle solid waste, uncollected waste, low service coverage and obsolete equipment are the common problems faced by the government (WorldBank, 2011b). The need to tackle the solid waste management in order to avoid health and environmental disasters has been the issue for big cities in developing countries and emerging countries (Anonym, 2012).

Why Solid Waste Management?

The first definition of solid waste was given by the American Public Works Association in 1975 as "useless, unwanted or discarded materials". It was then redefined conceptually by Savas (1976) who framed solid waste as "solid material which is discarded". However the last definition ignores the issue of usefulness, value, or desirability of that materials (Ostrom, 1976). The definition of solid waste has changed over time. Increasingly, with greater worldwide environmental awareness worldwide, solid waste is defined as "any item or material that is discarded by its owner and that is not discharged in gaseous form to the atmosphere, to a pit latrine or via a pipe or channel. It may include gases and liquids in containers"(Coffey & Coad, 2010). Recent literature explains that "waste is a substance that one would like to dispose of, and one is prepared to pay some fee for the service"(Dijkema, Reuter, & Verhoef, 2000). Under this definition waste is something which is not used to its full potential and it is important to understand that any substance labelled as waste or resource is part of at least one material cycle.

The Organisation for Economic Co-operation and Development (OECD) defines solid waste management as "the supervised handling of waste material from generation at the source through the recovery processes to disposal"(OECD, 2007). In short, solid waste management is an act of planning and implementing a system to handle solid waste in one specific location (Prakriti, 2006). It could easily be divided into different value chain activities with different factors involved at different levels whether it is formal or informal (Memon,

Imura, & Shirakawa, 2006). Different activities involved in the process of solid waste management are street cleaning, door-to-door collection, waste transfer to temporary disposal sites, transportation to the final disposal site, resource recovery (e.g. by incineration or landfilling) and final disposal (Memon et al., 2006; Rodic, 2011).

Regarding solid waste management, Cointreau-Levine (1994) argues that it is a service for which local government is responsible. It is non-exclusive, which means that once it is provided in one part of a community, it benefits everyone, not only the specified service recipients. Solid waste services are also considered as non-rivalled, which means that any residents can enjoy the benefit of the service without diminishing other people's benefit. These services are also considered as essential, as it is not feasible to exclude some people who do not pay. Solid waste service should be provided to everyone as it is strongly related to the question of public health and environmental protection. Over time solid waste management has been the responsibility of local governments but current trends show that the private sector has been playing an increasingly important role in helping the government to provide in this service (Cointreau-Levine & Coad, 2000). This trend is also noticed in the developing world and is the reason behind this study and the motivation to research this subject further.

Building upon this background, the first aim of this research is to identify the main drivers in the privatisation of solid waste management in the cities of São Paulo, Jakarta, Kuala Lumpur, Nairobi, Lagos, Dar es Salaam and Kampala.

RQ1: *What are the main drivers in the privatisation of solid waste management in developing countries?*

The second part of the literature review is to identify the most important factors in choosing to involve the private sector in this field in these developing cities. The selected seven cities considered to be good case studies to have better understanding on the drivers of solid waste management. In this phase a detailed knowledge on the cities' solid waste management practice is obtained and analysed.

RQ2: *How do environmental factors influence this choice? Why do decision makers decide to privatise solid waste management in developing cities?*

The third initial research question aims to identify the different impacts of solid waste management privatisation between practices in different cities. This is also achieved through an analysis of the available data and other governmental reports.

RQ3 : *How do the impacts of the privatisation of solid waste management offer from each other in the seven cities?*

The research ends with a general conclusion based upon the discussion concerning the conceptual framework and the comparisons between different cities. Within the conclusion, the recommendations for further research will also be provided.

III. Methodology

Grounded Theory as a Qualitative Research Methodology

As this research problem entails a set of different issues, grounded theory was seen as the best method to perform this research. According to Bitsch (2005), grounded theory is "a methodology of developing inductive theories that are grounded in systematically gathered

and analysed data". Accordingly, the research process starts with deciding on the research problem, formulating the research questions, collecting data, analysing it and developing theory based on the analysis (Bitsch, 2005). Within the research, the end product will not be a new theory but rather propositions based on data analysis. The method involves an interactive process between data analysis and data collection (Corbin & Strauss, 2008), which means that there is constant interaction between data collection and theories. The first phase of data collection was conducted to develop better knowledge on the recent trends and drivers that lead to the privatisation of solid waste management and the second round of data collection and analysis was done with a strong focus on building new theories (Glaser & Strauss, 1967).

This research methodology is suitable for this case because the research concerning the privatisation of solid waste management was mainly carried out through the use of case studies and rarely from a theoretical perspective. An explanatory theory building approach seems appropriate to assess complex issues such the privatisation of solid waste management. The approach enables us to build or generate theory through explaining certain phenomenon with collected data from case studies (Corbin & Strauss, 1990; Strauss & Corbin, 1990).

Data Collection

Data collection was entirely conducted using secondary data on the privatisation of solid waste management services in the developing world. This secondary data was collected through a review of scientific journals, press-releases and governmental/NGO reports. We limited the usage of data from news unless it was needed. The data collection was done in Wageningen through internet research and literature research from August 2012 until the end of January 2013. Data was collected in two stages. The first stage collection conducted mainly to understand the recent trend on solid waste privatisation and develop a conceptual framework.

The initial conceptual framework is based on New Institutional Economics and specifically focuses on the private governance of public goods as well as the analysis of the choice of governance structure for solid waste management. The second round of data collection was achieved mainly to gather detailed information about the cities and analyse the data using the conceptual framework built in the first round of data collection. Within this research, theories and data were collected simultaneously.

Most information was obtained from recent data provided by the UN and the World Bank online databases. Different examples of privatisation were obtained from previous research on the topic done by international or local researcher on the cities, which could be obtained through internet. Supporting data was obtained through books, audit reports from local governments, government websites, city mayor websites and other online and paper-based articles.

Selection of the Cities

The selection of the cases is an important element of an inductive research. Theoretical sampling or purposive sampling methods are used to select cases which are likely to confirm or extend theory (Dentoni, 2009; Eisenhardt, 1989). As mentioned before, the research is focusing on practices in cities located in developing countries, which have already privatised their solid waste management. The research focused on cities located in countries

which are categorised as middle to low income countries according to the World Bank classification. A maximum variation sampling[1] approach was used within the research. This method of sampling allows us to determine in advance some criteria that differentiate the cases and then select the cases that differ (based on the criteria determined) in order to increase the likelihood that the findings will reflect different perspectives (Creswell, 2013). This method is particularly suitable as the purpose of this research is to reflect differences between the privatisation of solid waste management practices in developing countries. The convenience cases sampling approach is also used within the research as it enables us to select cases which are accessible and well documented (Creswell, 2013).

The entire group of selected cities is compiled following these criteria. The selection criteria is adapted from previous research done by Wilson et al in 2010 on solid waste management in the main world's cities. It is seen to be appropriate criteria to depict the variation between the cities studied. First, it represents three different continents, which constitute the bulk of the developing world. As it commonly recognised that most developing countries are located in Latin America, Asia and Africa, at least one city is selected from each of these locations. Secondly, the cities selected range in terms of size, area and population. The cities selected include megacities and small cities. Thirdly, these cities represent a range of different geographic and climatic conditions. While most of the selected cities are located in tropical or sub-tropical climatic regions, the geographical conditions and elevation vary between cities. They range from coastal cities to highly elevated areas. Fourth, the group of cities selected represent countries with different levels of economic development and different socio-economic activities. For example, some of them are more orientated towards the service industry and others towards the manufacture sector or the agricultural sector.

Political background is the fifth consideration in the city selection. For example, it is interesting to consider that in Latin America, independence came much sooner than in most of Africa or Asia. This can in turn impact political practices. Finally, cities were selected according to the availability of the secondary data provided through online publications such as websites and previous research done in solid waste management and other literature such as books and the World Organisation report. Furthermore, the cities were selected because of the exclusivity in their privatisation practices and because they have shown different levels of success in these practices. In short, the selected cities represent a range of sizes, geographic, economic and political conditions . Table 1 below shows the group of cases selected based on the criteria determined above.

[1] Maximum variation sampling is "a purposeful sampling strategy aims at capturing and describing the central themes or principal outcomes that cut across a great deal of participant or program variation". This strategy begins with identifying diverse criteria to develop the sample, then looking for information that explains systematic variation and significant prevalent patterns in the variation (Patton, 1990).

Table 1. Group of Cases based on The Set of Criteria

Cities, Countries	City Area in km square	Gross National Income per capita 2009 in US$ (World Bank, 2009)	Human Development Index 2009 (UNDP, 2009)	Independence from Colonialism	National Government System/National Legal System
São Paulo, Brazil	1,493	8,040	0.72	1822	Federal Republic/ Civil Law
Jakarta, Indonesia	655.7	2,230	0.61	1945	Republic/ Civil Law
Nairobi, Kenya	696	770	0.51	1960	Republic/ Common Law
Kuala Lumpur, Malaysia	243	7,230	0.76	1963	Constitutional Monarchy/ Common Law
Lagos, Nigeria	999.6	1,140	0.46	1961	Federal Republic/ Common Law
Kampala, Uganda	169	500	0.46	1957	Republic/ Common Law
Dar es Salaam, Tanzania	1,393	460	0.45	1962	Republic/ Common Law

Source : (UNDP, 2009; WorldBank, 2009)

Data Analysis Method

The selected cases were analysed using within-case and cross-case analysis (Eisenhardt, 1989). Within-case analysis involves analysing the detailed information about the cities, such as information about geographical location, economic level, and political situation. The cross-case analysis was done by comparing the obtained data from each city and highlighting similarities or differences. The cross-case analysis is important in identifying how the differences between cities have impacted the privatisation of solid waste management.

After the data was collected, it was then described and classified based on the conceptual model. The initial research questions were the tools to classify the collected data. Data interpretation and visualisation were done after that to develop propositions (Creswell, 2013).

Develop Propositions, Literature Comparison and Closure

Using interpretation and visualisation done in previous steps, propositions were developed based on the data evidence. Comparisons between the initial propositions and the similar and conflicting literature were conducted to improve the definition and to raise the theoretical level (Eisenhardt, 1989). The research ends with a remark on theoretical saturation based on the comparison done in the previous stage.

Limitation

The validity of data was considered to be the main limitation of this research so only official data from the government or world organisations (World Bank, United Nations) websites were used. Data availability was also is an issue in this research. Documents such contracts or agreements between government and private sector could not be obtained through internet.

City Descriptions

Seven cities were selected for this research. They are São Paulo (Brazil), Kuala Lumpur (Malaysia), Jakarta (Indonesia), Lagos (Nigeria), Kampala (Uganda), Dar es salaam (Tanzania)

and Nairobi (Kenya). Table below gives an overview of the cities selected followed by a description of the cities.

Table 2. Case study description

No	City (Country)	Country's GDP per capita 2010 in US$	Population in 2010 (in thousand)	Year Founded	Year Starting SWM Privatisation
1	São Paulo (Brazil)	10,993	20,262	1554	1968 (Bartone et al, 1991)
2	Jakarta (Indonesia)	2,952	9,210	397	1988 (Astuty, 2004)
3	Lagos (Nigeria)	1,443	10,578	1472	1977 (Environmental-Expert, 1999)
4	Nairobi (Kenya)	795	3,523	1899	1906 (Moyo et al, 1998)
5	Dar es Salaam (Tanzania)	527	3,349	1862	1992 (Kasim & Ali, 2006)
6	Kuala Lumpur (Malaysia)	8,691	1,519	1857	1994 (Sakawi, 2011)
7	Kampala (Uganda)	515	1,598	1600	1997 (Katusiimeh, 2012)

Source : World Bank (2010), UN-HABITAT (2012)and other official city profile published by UN-HABITAT

São Paulo, Brazil

Founded in 1554, the city is located in the Southeast part of Brazil. It started as a poor Portuguese colony until the early 19th century then it became the city with the most rapid population growth in the 1960s and 1970s. With GDP per capita over 10,000 US$ in 2010, São Paulo is the richest city in Brazil. With an area of 1,968 km² and a population of over 20 billion people in 2010, the city is the most populous city in Brazil. The city grew as a result of the growing car industry and the mechanisation of farming systems in rural areas (Champion & Hugo, 2004). The city started to privatise its solid waste management in 1968 and handed the responsibility to LIMPURB, a public sector agency working on solid waste management (Bartone, Leite, Triche, & Schertenleib, 1991). It started with a five-year contractual arrangement for solid waste collection in the city. Currently the city works with two large companies through concession agreements to manage city landfills (ICLEI, 2009).

Jakarta, Indonesia

As a capital city of Indonesia, Jakarta had a population of 9,2 million people in 2010. Located in North western part of Java island, the city was first a port in the fourth century, rule by the Tarumanegara kingdom, and later become a Dutch colony. In 1945, it became controlled by National Government of Indonesia. In 2010, the city's Gross Domestic Product (GDP) per capita was 2,952 US$. As a result of rural out-migration, the city has grown rapidly in the past decades. (Champion & Hugo, 2004). The city started to privatise its solid waste management in 1988 through pilot projects in several districts of the city. Initial private involvement was mainly in solid waste collection through service contractual arrangements (Astuty, 2004). Currently, the city contracts a large scale company to managing its landfill through the 'Build Operate Transfer' concession arrangement.

Lagos, Nigeria

Albeit not the capital city, the city is Nigeria's largest city with a population of over 10 million people in 2010. The main economic activity comes from oil exports. The city, which was founded in 1472, has grown to become the place with the biggest city Nigeria. The city's population is expected to grow to over 15 million people by 2025 (UN-HABITAT, 2012). The city started to privatise its solid waste management in 1977 after the media classified Lagos as the world's dirtiest capital when it hosted Black Arts Festival (FESTAC '77) (Environmental-Expert, 1999). In 1985, the city contracted a firm from the private sector to collect solid waste (Cointreau-Levine, 1994). A study done in 2005 showed that 38.6% of total solid waste disposal of the city was done through the help of the private sector (UN-HABITAT, 2005b).

Nairobi, Kenya

Nairobi is the capital of Kenya and the population was of 3.5 million people in 2010. Despite the fact that the city contributes to over 45% of national GDP, the expenditure per capita is higher than the revenue collected per capita (UN-HABITAT, 2005a). Since Kenya gained independence from the British rule in 1963, agricultural products have been the main export. With a GDP of 795 US$ per capita in 2010, the country is classified as a low income country. Initial solid waste privatisation started in 1906 though it did not succeed and the responsibility was handed back to the government (the responsible of the failure? I don't understand Not clear) (Moyo, Kinuthia-Njenga, & United Nations Centre for Human, 1998). Currently, unregulated competition between small solid waste collectors is very common in the city, while the rest of the solid waste management sector is still under the responsibility of Nairobi City Council (Baud, Post, & Furedy, 2004; Kasozi & von Blottnitz, 2010; van Dijk, 2007).

Dar es Salaam, Tanzania

Founded in 1862, the city was the capital city of United Republic of Tanzania until 1996. With a GDP of 527 US$ per capita in 2010, Tanzania is considered to be one of the poorest countries in the world. As a result of rapid urbanisation and population growth in 1990s, over 70% of city population lived in informal settlements. In 2010, the population of the city reached over 3.3 million people and is expected to peak at 6.2 million people in 2025. In 1992, the city started to involve the private sector in solid waste management with the Sustainable Dar es Salaam City Project. Currently, the solid waste management privatisation is undertaken by the city and is arranged through micro-franchising. This model enables small to medium local contractors and community based organisations (CBOs) to work together in providing services to citizens. (Kassim & Ali, 2006).

Kuala Lumpur, Malaysia

Kuala Lumpur is the biggest city of Malaysia, with a population of over 1.5 million people in 2010. The country was under the British rule until 1957. Following independence, Malaysia experienced a rapid economic growth. With a GDP per capita of over 8,000 US$, the city mostly focuses on the service industry , with 83% of total employment comes from the service sector (WWF, 2009). The government of Malaysia has taken serious steps in improving solid waste management in order to improve quality of service, promote efficiency and provide better facilities. Thus, in 1994 the waste management sector was privatised and 4 consortiums were created in a 20-25 years period to provide solid waste service within cities of Malaysia (von Weizsäcker, Young, & Beisheim, 2005).

Kampala, Uganda

There were 1.5 million people living in the city of Kampala in 2010 and the population is expected to reach 3.1 million people by 2025. The city used to be the capital city of Buganda Kingdom until 1962 when it became the capital city of Uganda. With a GDP per capita of only 515 US$ in 2010, Kampala has the same classification as its neighbour, Dar es Salaam. The city's population during the day is twice as big as workers tend to commute from neighbouring areas (UNCTAD, 2003). In 1997, the city involved the private sector in its solid waste management. This was achieved through a contractual arrangement. According to Katusiimeh's research, a collaboration between the formal and the informal sector was seen as the best way to serve the city (Katusiimeh, 2012).

IV. Theoretical Framework

Privatisation of Solid Waste Management: Drivers, Forms and Impacts

Privatisation is defined as "any process aimed at shifting functions and responsibilities, in whole part, from the government to the private sector"(GAO, 1997). Based on this definition, it can be elaborated that the privatisation of solid waste management can be defined as *any process aimed at shifting functions and responsibilities in managing solid waste service from the government (public sector) to the private sector through the reduction of the government's involvement*.

The shift in function and responsibility from the public sector to the private sector can cause a change in the governance structures. There are two different types of drivers which influence an entity to change its governance structures. E*xogenous drivers* or general trends happened outside the domain of the governance of the urban solid waste management. They include changes in social capital, technology, the role of the state and the environment. The second type relates to *endogenous drivers,* which are connected to the specific institutional and organizational elements of the governance of urban solid waste management.

Exogenous Drivers of Privatisation

Groenewegen et al (2010) mention that there are three exogenous variables which can change private or public governance structures. These are:

1. Culture and Social Capital

   The culture of a country is reflected in its laws and regulations, in the corporate culture of business and lastly in the norms and attitudes of individual actors (Groenewegen, Spithoven, & van den Berg, 2010). "Social capital means the features of social life which consist of networks, norms and trust that enable the people to act together more effectively to pursue shared objectives"(Putnam, 1995). Trust, common norms and values, reputation and active participation in society are several key elements of social capital (Slangen, Loucks, & Slangen, 2008).

   In many countries, the provision of services by the public sector is still considered illusory or optional, which leads to opportunistic behaviour and dishonest employees and politicians. In the end, this results in the worsening of the services provided to the citizens(Larbi, 1999). There is a declining optimism on how public institutions manage natural resources in terms

of efficiency (Mulder, 2004), which in turn increases the need for better governance, especially in the public service provision.

2. Technology Development
   New technology has emerged and has changed the nature of the competition in the market (Roth, 1988). Von Weizsäcker (2005) stated that technological development is one of the push factors which questions the dominant role of the state and strengthens the private sector. For developing countries, technologically development has brought the government to produce or provide services in an efficient way. Solid waste service provision should be conducted in an efficient manner which might mean involving private sector.
3. Role of the State and World Organisations
   The state, within this context, is defined as the National Government's influence on the city's governance structures. The change in National and World standards and legislation has had a major influence on cities' actors' decision-making processes. The issuance of decentralisation legislation in many developing countries in the 1990s has changed the way cities manage their financial budgets and foresee local development. Reformation in country's economic policies and the structure of the economy with regard to regulating foreign trade, monetary policy and liberalisation of private sector emerged in the 1990s as well (Moyo et al., 1998).

In addition to the three drivers mentioned above, the environment is also considered an exogenous driver for change of governance.

4. Environment
   As mentioned by Chandrappa and Das (2012) solid waste, when not managed properly, has a severe impact on living standards and local environment. The degradation of the environmental quality caused by the mismanagement of solid waste has been an emerging issue in many developing countries. The improper disposal of solid waste may cause many environmental problems (e.g. water and soil pollution), which in turn can lead to endangering wildlife and human life (Rodic, 2011).

Endogenous Drivers of Privatisation

1. Current Public Sector Governance
   Based on a study conducted in 40 developing countries over a period of 20 years, low income countries have been found to have a higher total estimated cost dedicated to solid waste management services compared to high income countries. In the low income countries, the total cost represents between 0.7 – 2.6% of the GNP (Gross National Product) while in high income countries it ranges between 0.2 – 0.5% of GNP (Cointreau-Levine & Coad, 2000). Cointreau-Levine & Coad (2000) also stated that the existing solid waste services delivered by the public sector are inadequate. It reaches only 10-40% of the total urban population in low income countries and only 50-85% in the middle income countries.
   The hierarchical bureaucracy of the public sector provision tends to be inherently inefficient (Hood, 1991). Less political interference from the government also made private management less restrained in terms of optimising its workforce and concentrating its resources on the services they intended to provide (Cointreau-Levine & Coad, 2000). Literature states that the main driver leading to the privatising of public goods is the

inability of municipalities in terms of management, financial or even technical issues (UN-HABITAT, 2010a; von Weizsäcker et al., 2005; Wilson, Rodic, Scheinberg, Velis, & Alabaster, 2012). Others argue that as the services provided by the public sector tend to be less competitive and that they meet citizens' standards (Batley, 2001).

2. Current Private Sector Governance

   The participation of the private sector in providing services is considered to be more efficient in terms of flexibility regarding the management of their resources. For example, private management can easily hire qualified staff and fire unqualified employers. There are fewer bureaucratic restrictions in the private sector, which gives the manager more power in decisions that require immediate action, such as obtaining spare parts for maintenance and sub-contracting when the demand for the service is high (Cointreau-Levine & Coad, 2000).

   Cointreau-Levine & Coad (2000) stated that the private sector provider is more accountable to its customers and obliged to react to customers' dissatisfaction in order to keep their customers. It also mentioned that less political interferences from the government made private management less restrained in terms of optimising its workforce and concentrating its resources on the service they provide. It is important to understand that private sector is profit driven thus it is important to ensure the certainty on their return of investment. The risk of bankruptcy also the issue in involving private sector, as the company might fail and goes out of business and the owner of the company lose their investment. In this case of public sector company, the investment losses tend to be covered by the government budget despite the company is closed down (Armstrong, Jia, & Totikidis, 2005).

Factors Influencing the Choice of the Privatisation Model

The choice of governance structure (privatisation model) is mainly influenced by two main characteristics. The first includes the asset specificity, uncertainty and frequency associated to the waste management the service. It also depends on the decision-makers' characteristics (i.e. the involved stakeholders), which include bounded rationality and opportunistic behaviour (Slangen et al., 2008).

1. *Asset Specificity* (relation-specific investment) can be divided into five categories. First, *site specificity,* which refers to a specific asset location and is tied to a particular area. Second, *physical asset specificity* refers to an involvement of an investment in a specific machine or building. Third, *human asset specificity* concerns the investment requires a specific human skill, which could only applied in the certain areas. Fourth, *dedicated assets* is defined as the commitment to provide funds to a specified transaction that might have been used in other places. Fifth, *brand name capital* suggests an affiliation with a well-known brand. The more specific the asset is the less likely a market governance structure will be pursued. Williamson (1987) mentioned that the asset specificity is the most critical dimension in describing transactions. As higher asset specificity means that the transaction is binding for both parties. Both parties are highly dependent on one another as most transaction-specific investments have less substitution possibilities (Groenewegen et al., 2010). In the solid waste management sector, higher asset specificity in certain activities or investments means the higher the chances are that the city authorities will pursue a more hierarchical governance structure. Parties who are involved in the transactions and which use highly

specific assets will aim to safeguard the contractual agreement before making major investments (Williamson, 1985).

2. *Uncertainty* involves both the behaviour of the contracting parties and market developments. This includes all events, which can be anticipated at high cost as well as unanticipated events. It also includes asymmetric information where one party has more information than the other one. The greater the level of uncertainty the lesser the possibilities that the activity is influenced by the structure of the market. In the case of the privatisation of solid waste management, the more the city's government considers the level of uncertainty to be high, regarding a particular activity or investment, the more likely the city's government is to pursue a top down approach, according to the hierarchy.
3. *Frequency* refers to the intensity at which a transaction is handled. Lower frequency implies higher transaction costs. The longer the relationship between the two parties lasts, the lower the recovery costs are for transactions are made on a regular basis (Groenewegen et al., 2010). Different types of governance structures exist and can be used in governing cities. Associated with high asset specificity, higher frequency transactions will be efficient if pursued in a more hierarchical type of governance structure.
4. *Bounded rationality* is a determining characteristic in the process of decision making. It means that human mental capacities are limited thus preventing them from foreseeing all possible events and calculating what would be the optimal behaviour to adopt. It also relates to the lack of information decision makers are often facing (Slangen et al., 2008). The privatisation of solid waste management cannot be separated from the ability of decision makers in city government. certain activities of investment are considered too costly the city government is more likely to pursue a more hierarchical type of governance.
5. *Opportunistic behaviour* happens when one party deliberately takes advantage of a situation by providing selective information, making false promises or acting differently (Groenewegen et al., 2010; Slangen et al., 2008). The more opportunistic behaviour is foreseen to seen in the transaction process is for the city government are to pursue a more hierarchical type of governance or maybe not even privatise its solid waste management.

Forms of Privatisation (Governance Structures of Waste Management)

Groenewegen et al (2010) stated that "governance structure deals with all the necessary steps to coordinate the transaction". Four major privatisation models have been used in the conceptual framework of this research. These models are the most common governance structures used in many developing cities based on studies conducted by Cointreau-Levine (1994) and Memon et al (2006). These four models are considered to provide an appropriate representation of governance structures, which range from a more hierarchical type of governance structure to more a market-orientated type of governance. These are:

1. **Contract model** is a model where governments contract private companies to take care of the solid waste management. The contract is granted following a competitive process to determine the best option and the government pays the company accordingly to the contract's terms.
2. **Franchise model** is a model where governments grant a monopoly (franchise) to a private company to take care of the solid waste management. The private companies recover their costs through direct charges to the customers they serve. In this governance structure,

governments act as controllers of tariffs (price regulation) in order to promote competition and reduce price collusion.

3. **Concession model** is a form of long-term contractual agreement. The model allows private companies to build a solid waste service facility and grants them the rights of ownership and operation for a limited period of time. After this period of time, the ownership of the facility will be transferred to the government.
4. **Open competition model** is a model where the government grants a license or permit to individual companies that are qualified to provide solid waste management services. If a specific company holds a monopoly zone then any number of companies may compete in one zone

Impacts of Privatisation

A governance structure is said to perform well when it 1) brings economic efficiency; 2) brings equity through fiscal equivalence; 3) redistributes equity; 4) the main impact of privatisation are described. Different governance structures have had a different impact on the privatisation of solid waste management. Although the impacts of privatisation are not always positive, von Weizsäcker et al (2005) suggests that it is likely to increase competition, service quality, efficiency, employment, and boost the local economy.

Based on a UN-Habitat study, there is a strong correlation between uncollected household waste and the rates of contraction of diarrhoea and acute respiratory diseases in children. In developing cities, involving the private sector leads to a higher collection coverage and street sweeping in the cities, and more access to waste facilities (Wilson et al., 2012). Thus, involving the private sector would have a positive impact on public health.

On the other hand it could also increase the chance of higher corruption among city actors (von Weizsäcker et al., 2005). For example, nepotism[2] in granting contracts to friends or family members is often used in institutional contexts where formal laws are not sufficiently enforced (Johnston & Seidenstat, 2007). This condition impacts negatively the competitive environment especially for small and medium scale enterprises. The risk of monopoly is also an issue in the privatisation of solid waste management, especially when the city government has a weak regulatory capacity in managing competition (Tanyi, 1997). With regards to cost efficiency, some private sectors are employing children in the solid waste collection sector (Begum, 1999). In low-income countries, where the informal sector holds an important role in the economy, informal waste collectors will be threatened by the privatisation of this sector as there will be less material to be recycled or sold (Ahmed & Ali, 2004).

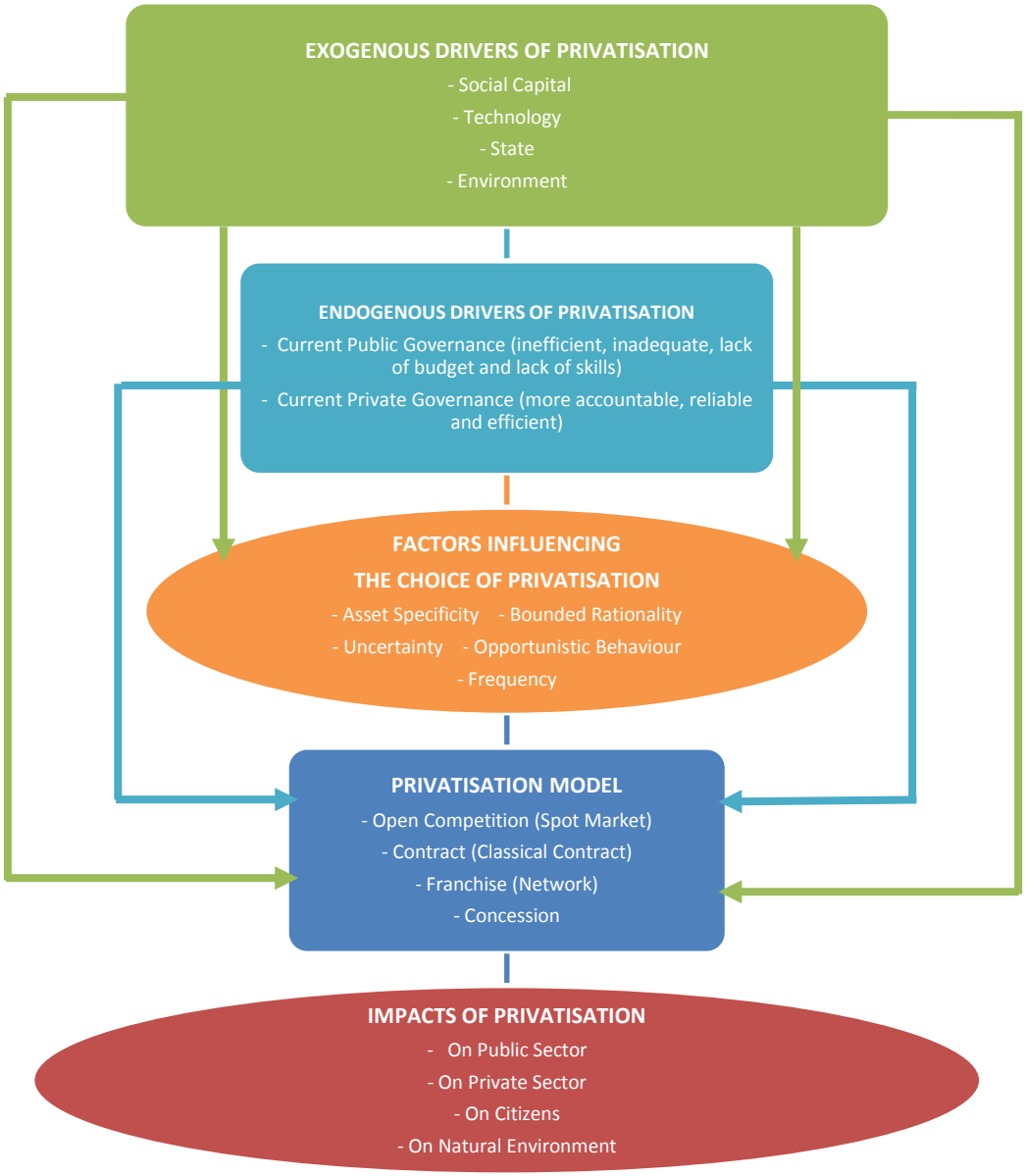
Based on the earlier precedent examples , this research showed that the impact of privatisation differ, whether the actors are part of the public sector, the private sector, or are citizens and finally the environment will also be impacted . The positive and negative impacts on each beneficiary are important to reflect upon, in order to determine whether the overall experience of privatisation is positive or not according to these case studies.

Figure 1 shows that the exogenous drivers of privatisation together with the endogenous drivers will determine whether it is beneficial or not to privatise solid waste

[2] According to Oxford Dictionaries, nepotism is defined as “the practice among those with power or influence of favouring relatives or friends, especially by giving them jobs” (Source : http://oxforddictionaries.com/definition/english/nepotism) .

management. In the end, it is expected that different types or models of privatisation of solid waste management will bring different impact on different cities.

Figure 1. Conceptual Framework



V. Results and Discussion

Exogenous Drivers

Economic growth and Urbanisation trends

Economic growth also plays a major role in the increasing number of urban population. High rate of urbanisation was strongly associated with strong economic growth in the urban (city) area. Despite the differences in culture and geographical location of the developing cities which have been selected for this study, there are similarities exist between them in terms the

consequences that increased urbanisation has brought. Urban pressure caused by increased out-migration to cities has been one of the most pressing issue city governments are facing since the 1980s. On the one hand, Table 1 shows that population growth rates in urban areas in African cities are very high. In Nairobi and Dar es Salaam, for example, in a decade the population increased by 50%. On the other hand, cities in Latin America and South-east Asia have lower population growth rates as Table 1 shows. In fact, growth rates in Latin America and South-east Asia are below 0.2.

Table 3. Population in selected cities (UN-HABITAT, 2012)

No	Cities	Population (in thousands)			Population Growth Rate	
		1990	2000	2010	1990-2000	2000-2010
1	São Paulo, Brazil	14,776	17,099	20,262	15.72%	18.50%
2	Jakarta, Indonesia	8,175	8,390	9,210	2.63%	9.77%
3	Nairobi, Kenya	1,380	2,230	3,523	61.59%	57.98%
4	Kuala Lumpur, Malaysia	1,120	1,306	1,519	16.61%	16.31%
5	Lagos, Nigeria	4,764	7,233	10,578	51.83%	46.25%
6	Kampala, Uganda	755	1,097	1,598	45.30%	45.67%
7	Dar es Salaam, Tanzania	1,316	2,116	3,349	60.79%	58.27%

This flow of migration from rural areas to urban areas was mainly caused by the lack of suitable employment opportunities. In Kenya, for example, repeated crop failure droughts and floods have forced people in rural areas to migrate to urban areas such as Nairobi (UNCTAD, 2003). Table 2 shows how urbanisation rate has increased within two decades in the developing countries studied in the research.

Table 4. Level of urbanisation in the seven countries studied (UN-HABITAT, 2012)

No	Countries	Level of Urbanisation (%)	
		1990	2010
1	Brazil	73.9	86.5
2	Indonesia	30.6	44.3
3	Kenya	18.2	22.2
4	Malaysia	49.8	72.2
5	Nigeria	35.3	49.8
6	Uganda	11.1	13.3
7	Tanzania	18.9	26.4

Economic growth and urbanisation play a major role in the privatisation of solid waste in Malaysia. Successful economic growth has led to a greater number of waste generated by cities (von Weizsäcker et al., 2005). In the case of Brazil, high rates of urbanisation are the

result of the introduction of mechanisation in agricultural practices. For example, as machinery and mechanization was more readily available on large coffee farms, fewer workers were needed to cultivate the field. Thus, landless farmers found themselves unemployed (Champion & Hugo, 2004). The introduction of mechanisation in farming systems was also a factor which caused greater urban migration in Malaysia (Parnwell, 1993). Urbanisation rates have increased also because cities is the illusion many believe city living offers a better life quality of life. Being capitals, cities like Jakarta, Kuala Lumpur, Nairobi, Dar es Salaam and Kampala are more attractive to people who seek better living because they entails better access to primary services and more employment opportunities. Cities like São Paulo and Lagos are attractive for their advanced economic levels. São Paulo is best known for its industrial economy while Lagos is known for its busy port, which is Africa's largest and busiest port.

P1 - Greater economic growth and urbanisation levels are two factors positively associated with the privatisation of the solid waste management system.

The Change in Social Capital

There is a global and growing demand for better public services. Public officials are expected to perform their duties with integrity and make arbitrary and objective decisions regarding public management (OECD, 2003). In countries like Brazil, society has become more critical to the government expenditure on public services improvement. This shows society's increasing awareness concerning the performance of governments (Reid, 2007). In cities like São Paulo, Jakarta, Dar es Salaam and Nairobi, most poor people live in unplanned settlements or slums, and as a result the cities' governments is expected to do more to improve the livelihood of these areas.

Compared to Asia and Latin America, people who lived in African cities, especially poor- areas, show less awareness about health and safety issues (Mbuya, 2008; Moyo et al., 1998; Pasang, Moore, & Sitorus, 2007). Some people in Tanzania prefer throwing waste to the ground, in open drains or on public spaces (Kassim & Ali, 2006). Nevertheless, the demand for better solid waste management is increasing as governments seem unable to performed this task (Baud et al., 2004; Kaseva & Mbuligwe, 2005; Majale Liyala, 2011; Moyo et al., 1998).

P2 - The more the urban population requires public service provision, the more city governments are likely to privatise their solid waste management system.

Fiscal Decentralisation and Fiscal stress

As the biggest and the most industrialised city in Brazil, São Paulo's booming economy is the result of the inward-looking economic policies of the 1990s. Currently, the city is considered as the world's third most important business destination (Reid, 2007). Similarly to Malaysia, with this rapid economic growth, the city delegated its responsibilities in most of the solid waste management activities such as waste collection, street sweeping, waste transfer and landfill management to the private sector through contractual arrangements (Bartone et al., 1991). The decentralised local governments enabled them to expand their services to citizens through their ability to mobilise local resources (Moyo et al., 1998). This means that city government has the autonomy in deciding the costs incurred for the public

service they provide and its quality. The authorities could decide on what is best for their city based on the local preferences (Laffont, 2005). Decentralisation enables local governments to improve their services through the autonomy to manage their own resources and at the same time making them more accountable to their own citizens in terms of efficiency in delivering public services(Memon et al., 2006). Sub-Sahara African cities like Kampala and Dar es Salaam privatised the solid waste management sector as a result of decentralisation, which took place in the early 1990s. The objective of decentralising governance was to improve the financial sustainability of the cities (Moyo et al., 1998).

As a result of rapid urbanisation, people in sub-Sahara African countries experienced economic imbalances as the gap between the rich and the poor became more obvious (Downie & Cooke, 2011). Cities in Africa tend to have lower GDP growth compared to cities in Asia and Latin America. In 1990s Tanzania's GDP growth rate was lower than the population growth rate, which results in the majority has for result that most part of the adult population being left unemployed(UN-HABITAT, 2009). Similarly in Uganda, the GDP was US$515 per capita, which made the country one of the lowest-income countries in the world (Tukahirwa, 2011; WorldBank, 2010). The inability of manufacture/service companies to provide low prices and consistent good quality service made foreign investment very low (UNCTAD, 2003).

Although fiscal decentralisation had a positive impact in terms of autonomy, it does not correlate with a positive in terms of finance. In the case of Indonesia, after the fiscal decentralisation, which took place in 1999, the solid waste management budget which used to be allocated from National budget diminished (Kool, Wibowo, & van de Kuilen, 2011). Cities like São Paulo, Jakarta, Lagos which recently became megacities with rapid economic growth, are still able to fund solid waste management programmes.. Decentralisation in Sub-Sahara African cities has brought different impacts as it results in fiscal stress on cities' budgets. Privatisation is the only way for these cities to maintain their solid waste management systems without getting into large amounts of debts.

P3 - Higher fiscal pressure on a city government is positively associated with city government's decision to privatise the solid waste management system.

The Role of World's Organisations

The rise of environmental awareness throughout the world has a huge impact on how waste management practices are organised in many countries (Broitman, Ayalon, & Kan, 2012). World organisations like UN-Habitat, UNEP and the World Bank have encouraged countries to adopt better environmental management practices to help mitigate the negative impact of climate change, especially through sound solid waste management. Especially since 2000, after Millennium Development Goals (MDGs) were set, solid waste management became a strategic issue for government in reforming its urban infrastructures (Gonzenbach, Coad, Gupta, & Hecke, 2007). Partnership with private sector is seen as a good measure for city government to improve solid waste management which then believed to improve the lives of the poor which is the purpose of MDGs.

Moyo et al (1998) explains that the World Bank and the International Monetary Fund (IMF) pressured developing countries into adopting the structural adjustment programmes (SAPs) in the early 1990s, which led to greater privatisation of services. In the case of Uganda,

urban system reformation in 1990s was a result of New Public Management promoted by international donor such World Bank (Katusiimeh, 2012). Despite the great influence of world's organisation, privatisation model offered as solution turn out to be ineffective. Ahmed and Ali (2004) argue that the conventional model of privatisation where large companies and governments form alliances (mainly in developed countries) could not solve the problems of solid waste management in developing countries. The integration of small companies/informal sectors within cities in developing countries considered to be important to have an effective governance structure (Ahmed & Ali, 2004; Majale Liyala, 2011; Tukahirwa, 2011).

P4 - World Bank programme funds and political pressure are two of the drivers that push governments into privatising the solid waste management system.

Endogenous Drivers

The Existing Public Sector Solid Waste Management

There are two main remarks in explaining how the existing solid waste management system drives these cities to delegate some of their responsibilities to the private sector. First is the existing management capacity of the public sector and second is the existing technical capacity of the solid waste management facilities.

As stated before most public services in developing countries are provided through the government. This means that public agencies dealing with solid waste management. These hold both an operational and a regulatory role, which in turn puts them in a conflicting relationship. Mainly as financial interests of the public officials can be conflicting (OECD, 2003). The greater the public interest regarding financial matters, the greater the possibility of it influencing the performance. Low tax rates means that in cities like Jakarta and Dar es Salaam public services are worsened through rent seeking.

In the case of Jakarta, Indonesia, the lack of trained human resources is also considered as a constraint in achieving a sound solid waste management. There are only few trained staff members in the sector of solid waste management (Moyo et al., 1998; Pasang et al., 2007). Budget constraints within cities in developing world also plays a major role in the limitation of services they provide to the public. Most of the solid waste management activities in developing countries are labour-intensive, which means higher amounts of money need to be allocated to solid waste management. Any cuts in labour expenditures in municipality budgets will reduce the payment of these solid waste management staff members (Agamuthu, Khidzir, & Hamid, 2009; Coolidge, Porter, & Zhang, 1993). Improving education levels in the cities studied has an impact on how people's jobs preferences and increase their access to better paid jobs. In the case of Lagos, Nigeria, the average age of public personnel in solid waste service was 40 years old as younger workers prefer better jobs for their careers (Cointreau-Levine, 1994).

The second serious problem is that cities lack the technical capacity to manage solid waste services. Contrieau-Levine (1994) mentions that government often own obsolete waste management equipment. For example, in Kampala, limited technical capacity means that only 15,000 tonnes of the total 42,000 tonnes of waste produced every month can be carried to the Kiteezi landfill (Katusiimeh, 2012). Even worse, in Dar es Salaam, Tanzania, the city is only able to manage 2-4% of the total waste generated daily which means that the remaining waste is illegally dumped or just left out in public spaces (Moyo et al., 1998). Thus, the involvement

of the private sector within solid waste collection in these cities is considered as the only way out.

In São Paulo and Kuala Lumpur, authorities decided to privatise to provide more efficient solid waste management services. In São Paulo, because of the costs entailed by the purchase of vehicles, it was judged more efficient to privatise. In this case, the costs of contracting the private sector was 23% less expensive than if the services had been provided by the municipalities (Bartone et al., 1991; van de Klundert & Lardinois, 2012).

P5 – Public sector's levels of human capital and technology are negatively associated with privatisation of the solid waste management system.

Influencing Factors on Privatisation Model Decision

Legal System and Its impact to Bounded Rationality

Colonialism played an important role in shaping developing countries legal and political frameworks. Five of the seven case studies were British colonies in the past while the two others were Dutch and Portuguese colonies. These countries' legal system was developed based on the old Empires' systems. For example, the Malaysian Federal Constitutional Elective Monarchy Government was inherited from the British colonial rule. Common law as a legacy of the British colonial rule and Civil law as a legacy of the Dutch and Portuguese rule have influenced the way cities have chosen to privatise or not. Apart from Malaysia, which has a Parliamentary Constitutional Monarchy, the other six countries studied within this research have a Presidential system.

On the one hand, common law tend to grant more freedom in deciding on conceding different types of security of assets. Common law also recognises the concept of trusts, which enables the private sector to transfer the asset ownership back to the government without formal transfer or re-registering of the security interests in the name of a new creditor (WorldBank, 2011a). A study done in 2000 stated that countries which have adopted the common law system could afford extensive legal protection for the shareholders and creditors (Bortolotti, Siniscalco, & Fantini, 2000). Improved industrial policy framework in Malaysia (Noman, 2012) is one of the reason why Malaysia arranged their solid waste management through concession. The concept of trust and protection valued in the common law system allowed the private sector to play a major role in the solid waste management system.

On the other hand, civil law gives less freedom to the contractual arrangements as it they tend to be written and codified (WorldBank, 2011a). In the case of Jakarta and São Paulo there was a long-term contract made with the private sector only with regards to major capital investment like building sanitary landfill.

Each African cities studied in the research decided upon different privatisation models. Von Weizsäcker (2005) argues that the choice of privatisation options is likely to be determined by the government's regulatory capacity. When the regulatory capacity is weak, governments are likely to have a greater ability to exert control over private firms than individuals (citizens). With a greater ability to monitor and regulate limited private provision activities, the state may decide to move towards more advanced stages of private provision. There is a limited number of laws and regulations in African cities, which resulted in the

incomplete or partial privatisation process, whereas in Kuala Lumpur and São Paulo, the processes of privatisation were more developed (Tanyi, 1997).

P6 - Cities with weak regulatory legal system are less likely to privatise the solid waste management system.

Political Situation, Bureaucracy, Corruption Level and its impact to Bounded Rationality and Opportunistic Behaviour

Political factors have an influence on the way local governments decide to privatise their public services (Bel & Fageda, 2007; Bel & Warner, 2008). Political situation holds a very important role in the decision making process. Political instability between 1956 and 1985 was a big issue for Sub-Sahara African countries (Fosu, 1992). Following independence, political institutions were weakened, which pushed the leaders in place to maintain ta centralised government (Noman, 2012). In Uganda, democracy played a minor role as the system was prone to corruption and rent seeking. It was the same case in Nigeria, where the election process was found to be corrupted and civil unrest was a threat to political stability (Downie & Cooke, 2011). This political situation has a huge impact on countries' economic growth because it undermines the investment climate for foreign investors (UNCTAD, 2003). This political unrest and its subsequent impact on the investment climate made most African city governments share the brunt of ensuring the function of the solid waste management system (Breeze, 2012; Environmental-Expert, 1999; OAG-Uganda, 2010; Olorunfemi, 2011). Some governments are reluctant at privatising because it is seen by many as giving up power (Moyo et al., 1998). The involvement of the private sector in the solid waste management system was mainly motivated by its direct impact on public health and the cities' physical aspect (Coad, 2011).

Compared to African countries, Southeast Asian countries and Brazil are considered to be more politically stable. As for Malaysia, the country is known as the most stable countries in Southeast Asia and especially since the resignation of long time ruler Mahathir Mohammad (Bersick & Pasch, 2007). Similar to Malaysia, Brazil's political situation has been less violent. Political change has tended to be peaceful and evolutionary in Brazil despite difficult transition from military rule in the 1980s (Reid, 2007). In 1998, Indonesia went through a period of political unrest when the long-time President Soeharto gave up his position as vice president. Soon after that, in 1999 the fiscal decentralisation law was stipulated.

Hence a more stable political situation and rapid economic growth impacts positively the environment and represents an incentive for the private sector to invest in different sectors, such as the solid waste management system. These three cities have involved the private sector through longer contractual agreements concerning waste treatment facilities management (BPK-RI, 2010; ICLEI, 2009; Sakawi, 2011). Decision makers within these three cities had more confidence in building long-term contractual arrangements with the private sector because the political situation was more stable, which involves lower transaction costs.

Bureaucracy was seen as a limitation in the case of Dar es Salaam, for example. Simple procedures might take too much time to complete (Moyo et al., 1998). Less bureaucracy was one of the reasons why it was easier in Malaysia to privatise the solid waste management system through concession arrangements. Following the full privatisation of the services, the government works with four different consortiums, which were granted a 20-year long

contracts to manage the waste in Eastern and Western part of Malaysia. This 20-year contract means that the consortiums have the right to make long-term plans and programmes in order to improve the quality and efficiency of their services without any disruption from local governments (Sakawi, 2011).

Corruption is a worldwide problem and also a major issue in the privatisation of solid waste management systems. In 1995, Indonesia ranked as the most corrupted country out of 41 surveyed countries with a score of 1.94 on the Transparency International (TI) scale (TransparencyInternational, 1995). Corruption is also a problem in Africa, in countries like Nigeria, Kenya and Uganda. Among seven countries studied, Malaysia scored the highest on the TI scale, with a score of 37 and ranked 54th in the list of Corruption Perception Index 2012 which surveyed over 170 countries (TransparencyInternational, 2012). Corruption is perhaps the single largest obstacle to growth in sub-Saharan region countries. Corruption has non-negligible impact on the widespread non-compliance to laws and regulations (Goldthorpe, 1996). Especially concerning solid waste management privatisation, corrupt governments are not only the driver to privatise but also the" internal enemy", which reduce competitiveness[3] of markets for the private sector. Corrupt governments will favour their own interest over the common welfare, which means that money can buy favourable treatment from government authorities (Goldthorpe, 1996). Thus the decision over certain form of privatisation in solid waste management system is highly influenced by corruption levels at the political level.

P7 - The political situation, high level of bureaucracy, and the corruption level among city actors has a major influence on the way government decide whether or not to privatise and the type of privatisation that will be adopted.

Asset Specificity and Frequency on Different Activities in Solid Waste Management

Groenewegen (2010) state that the more the transactions are regularly dealt are the likely it will be governed through long-term relationship. In reality, it is highly depend on city government capability in terms of financial and regulatory capacity. Malaysia for example which has higher income and strong regulatory capacity (Noman, 2012), long term contract with private sector seen as feasible option. In some cases, short duration contract agreement can be caused by the tenure problem which make some city government hesitate to extend the contract beyond their term of office (Coad, 2005).

There is no strong evidence about the transaction frequency is directly associated with city government choice for a certain privatisation model. In association with asset specificity, Slangen et al, (2008) stated that higher asset specificity and frequent transaction demand a unilateral governance. That is the reason why for activities such solid waste final disposal and treatment, city governments of Jakarta and São Paulo built a long term partnership (Build Operate Transfer concession) with one or two private companies to manage the service (BPK-RI, 2010; ICLEI, 2009). Concessions enabled these two cities to reduce its budgetary burden while at the same time benefited from more human capital to be allocated in other activity in the governance.

[3] "In Lagos, for every five contracts awarded to private sector, the funds for four of them largely end up in the government officials and contractors"(Werlin, 2005)

As for simple activities such as street sweeping and door-to-door collection, which do not required a specific and expensive technology, in most instances Small and Medium Enterprises (SMEs) are involved in providing those services. In 1998, Dar es Salaam with the help of the International Labour Organisation (ILO) arranged a micro-franchising in order to improve the collection coverage (UN-HABITAT, 2010a). This arrangement allowed small scale enterprises or community-based organisations to take part in the collection of waste in the neighbourhood. As seen on picture 1 below, the technology used by these private sector workers is considered to be very traditional, and all the work is done manually.

Picture 1. Solid waste collection in Dar es Salaam city Tanzania
(Source : UN-HABITAT, 2010a)

Street sweeping and door-to-door collection was also the initial private involvement in Jakarta. Since 1988, medium enterprises, which were contracted by the city government have been helping the city in collecting waste and transferring it to final disposal in Bantar Gebang, Bekasi (Astuty, 2004).

P8 - The higher the asset-specificity of activity transaction between the government and the private partner, the more the city government is likely to engage with the private sector in a long-term contractual arrangement.

Uncertainty Issues

The case of Kuala Lumpur and its 20-year concession agreement shows that market uncertainty is not an issue for city government. Market uncertainty issue is important to private sector because of its orientation towards profit. The private sector would only invest in a project if it is worth it financially. This is why in Jakarta and Kampala, successful private sector involvement in the solid waste collection were successfully achieved in high-income residential areas (Astuty, 2004; Katusiimeh, 2012). Market uncertainty increased the asymmetric information thus increase the transaction cost (Slangen et al., 2008). Therefore, most cities studied within the research prefer to arrange the service through more hierarchical governance instead of market governance.

P9 - Cities with higher market uncertainty are less likely privatise its solid waste management through market-oriented governance.

Impacts of Solid Waste Management Privatisation in Seven Cities

Despite the different forms of privatisation used by local governments, the overall process has a positive impact on cities. There are four main aspect of a successful privatisation done by government. *First*, the governments reduce their financial burden by providing services and appropriate infrastructure. Private investment in the waste treatment facilities through long term partnerships in Jakarta and São Paulo is a major advantage for the city government as it is too expensive for them to do it with the government's budget (BPK-RI, 2010; ICLEI, 2009). Despite the positive impact described earlier, there subsist negative effects on the public sector. Study by Contrieau-Levine in 1994 found that the private sector paid the public agency employees to perform their duties to collect solid waste and the public sector also being burdened for maintenance costs, which should be the responsibility of private sector.

The *second* affected party is the private sector itself which comprises different scale of enterprises and community-based organisations. Micro-franchising in Dar es Salaam has improved the private sector because the revenues collected from service provision are an important source of income for small and medium enterprises (Ahmed & Ali, 2006). The lack of awareness of the private sector's involvement is also seen as problem, which arises in Dar es Salaam and which hampered the revenue collection by the private sector.

The *third* party impacted is the people who live in these cities. As the collection coverage services improved, people or customers will be more satisfied. Improved city cleanliness leads to a better public health, which in turn increases the city's livelihoods. In the case of a successful privately-managed landfill in São Paulo, many jobs were created locally for the people living in the surrounding areas (ICLEI, 2009). The process of composting , achieved by the private sector also brings huge advantage for the urban agriculture within African cities . More than 70% of the solid waste generated by cities in Africa is organic which means that it could be re-used as farm manure by farmers (Majale Liyala, 2011). Although it has helped government in solid waste service provision, low-income area residents like those living in slum areas tend to have less access to services compared to those in higher-income areas (Astuty, 2004; Katusiimeh, 2012). City governments of Jakarta, São Paulo, and Nairobi still need to work towards improving the solid waste management within these areas.

As mentioned earlier the private sector's involvement might jeopardise the livelihood of informal workers, because the informal sector in low-income countries still plays an important role in the provision of solid waste management. Especially in resource recovery, waste pickers in cities like Jakarta and São Paulo are incorporated in scavengers association in order to help improving waste recycling (Medina, 2000).

Finally, the natural environment considered to be affected by the solid waste privatisation. Especially for the waste treatment and disposal sector, privatisation has brought a better management on the solid waste. For example in Kuala Lumpur and São Paulo, greenhouse gas emission have been reduced through a better technology provided by the private sector (ICLEI, 2009; Sakawi, 2011). In Lagos, the involvement of the private sector in the earlier years did not perform as well as expected, and the private sector irresponsibly dump the waste they collected in open dump-sites (Cointreau-Levine, 1994). This situation is similar to Nairobi's case, where until recently unregulated open dumping was the method used by the private sector to dispose of waste (Wilson et al., 2012). This situation is proves that the

involvement of the private sector in solid waste management does not necessarily improve environment standards.

The impact of privatisation on solid waste management are quite similar between these cities. In the case of African cities, privatisation is seen as a way for the government to provide the minimum basic services to its citizen. Budgetary problems and weak institutional capacity makes the basic provision (e.g. solid waste collection) of services expensive for public sector. City cleanliness, income sources for private sectors and manure from organic waste composting are a few examples of the benefits of the privatisation of solid waste management in African cities.

For cities like Jakarta, Kuala Lumpur and São Paulo, the involvement of the private sector has moved to a different level. It started from the simplest technical aspect required in the earlier stages until the private sector played a greater role in the service provision. These cities have focused on the sustainability aspect and are actively participating in International initiatives on climate change risk reduction. Reduction of greenhouse gas emissions and waste as well as energy saving projects are some of the examples that illustrate the way the private sector's involvement can help improve cities' environmental management.

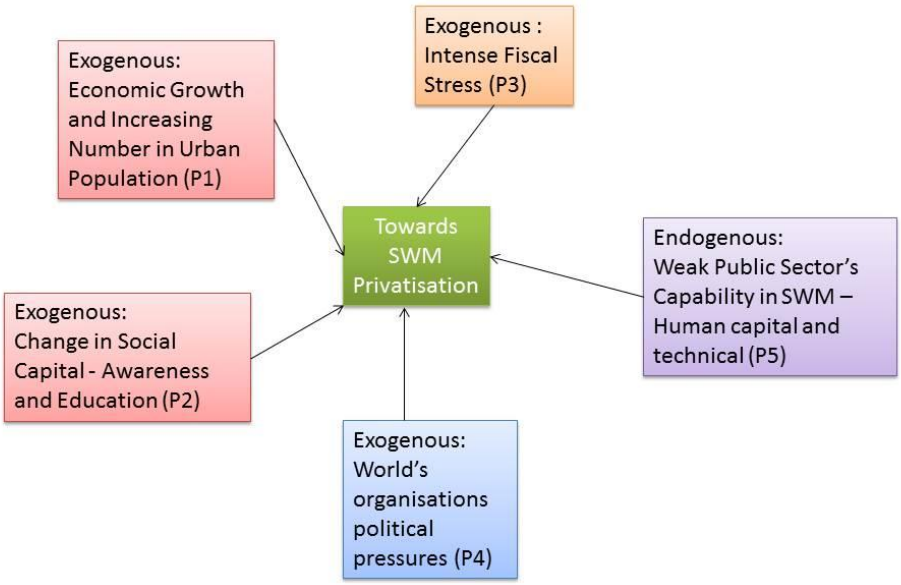
P10 - In higher income cities SWM privatisation have higher level impacts on the quality of city livelihood if compared to ones in the low-income cities.

VI. Conclusion

Our propositions above show that the privatisation of solid waste management in developing countries was driven mainly by changes that happened outside of the domain of solid waste management. Figure 2 below shows the main drivers of solid waste privatisation from the cities studied. Changes in urban population and economic growth are seen as the strongest drivers within the cities studied. From megacities like São Paulo to small cities like Kampala, urban populations have been growing rapidly over the past decades. Problems arise when the growing population is not accompanied with the same growth rate in economy. Both economic growth and population growth alone could not lead into changes in governance structure. An intense fiscal stress experienced by city governments, the rising demand of better governance in the society, and pressures from world organisation's add up to the need for city governments to change.

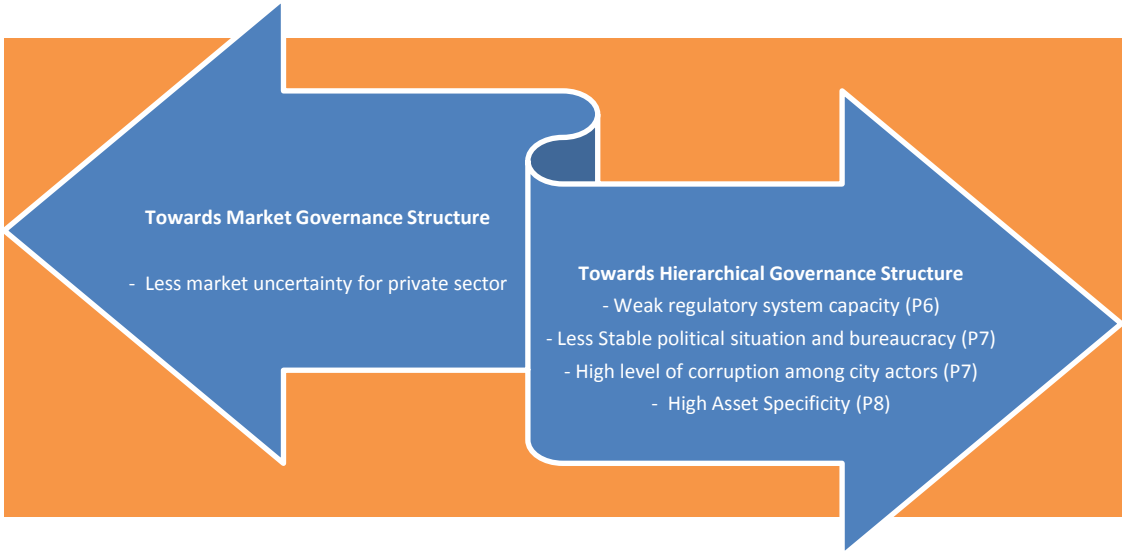
The weak institutional capacity of public sector agencies in developing cities is the tipping point for city decision makers to finally decide upon privatisation. The study shows that lower-income cities decided to involve the private sector as it is very difficult for them to perform solid waste services by using their very own capital (people and technical) while in upper-middle income cities, the involvement of the private sector has reached a level where it reduces the administrative burden within city governments.

Figure 2. Drivers of Privatisation



The decision upon certain types of privatisation within this research is strongly related to the decision makers' characteristics, although the environmental characteristics (asset specificity, uncertainty and frequency) are also found to be influential. Within the research, it is found that the role of governments remain strong both in low-income and upper-middle income cities. Thus hierarchical governance structures are the most favourable type regarding the privatisation of solid waste management. Figure 3 below illustrates how influencing factors lead to certain governance structures.

Figure 3. Influencing Factors in choosing Privatisation Model



Although much literatures has documented that privatisation has increased financial efficiency, it is difficult to indicate that solid waste privatisation has brought financial savings for city governments. It is important to understand that solid waste management benefits the public. The impossibility to exclude non-payer customers is the main reason why full privatisation of solid waste management is rarely found, especially in developing countries. The reality that there are still large numbers of the population who lived in the low-income areas (slum areas) within the cities studied is the real challenge in the privatisation of solid waste management.

It is also found that successful privatisation will require not just physical capital investment from the private sector but also enhanced social capital within the city. Trust and commitment among solid waste management actors and the citizens is likely to reduce asymmetric information and thus reduce transaction costs. Partnerships between the public sector, private sector and civil society in Dar es Salaam is seen as the best method to reduce the asymmetric information between private companies and society and help relevant actors to perform their obligations (Brown, Potoski, & Van Slyke, 2006; Kassim & Ali, 2006)

Further research is recommended to assess various elements of social capital in developing cities to understand what is the most appropriate type of solid waste privatisation. Another recommended research project is to assess the feasibility of having full privatised public utilities for management services in other developing cities, especially in African cities.

Finally, the research contributes to the existing literature as specific research about the privatisation of solid waste management that are mainly done by the world organisations (United Nations and World Bank). The grounded theory approach within this study was only used for the exploratory analysis of the available data. Further research is needed to test and formalised the propositions suggested above.

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