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Urban management and institutional change

*An integrated approach to achieving
ecological cities*

By Meine Pieter van Dijk

Urban management and institutional change: An integrated approach to achieving ecological cities

Contribution to an International seminar Sustainable urbanization in Libya
Tripoli, Hotel Bab Africa, 30 June and July 1, 2007

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Urban Management and Institutional Change: An Integrated Approach to Achieving Ecological Cities

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Key words: Urban Management, institutional reforms, solid waste management, ecological city

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Introduction

In this contribution I will deal with the following topics in this order:

1. Urban Management an integrated approach!
2. Reforms to improve the performance of the municipality
3. What is new in Urban Management: the New Public Management
4. Autonomy OK, but what is accountability?
5. What are the issues? Lets analyze it
6. What about the dynamics of cities?
7. How can we finance urban development alternatively?
8. Who is the real urban manager and what are some relevant books on urban management?
9. An illustration: solid waste issues in Africaⁱⁱ
10. How can we achieve ecological cities?

The dynamics of cities: the golden triangle

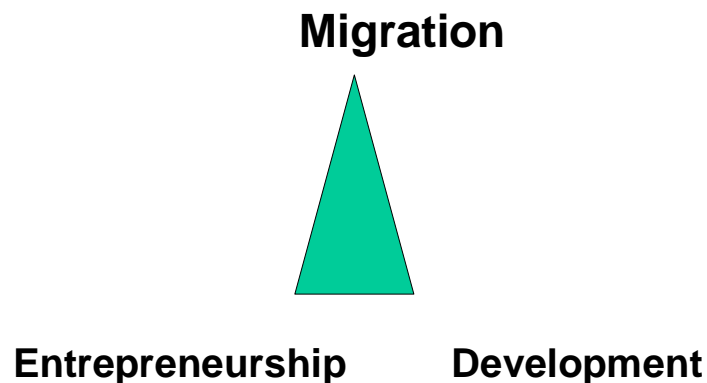
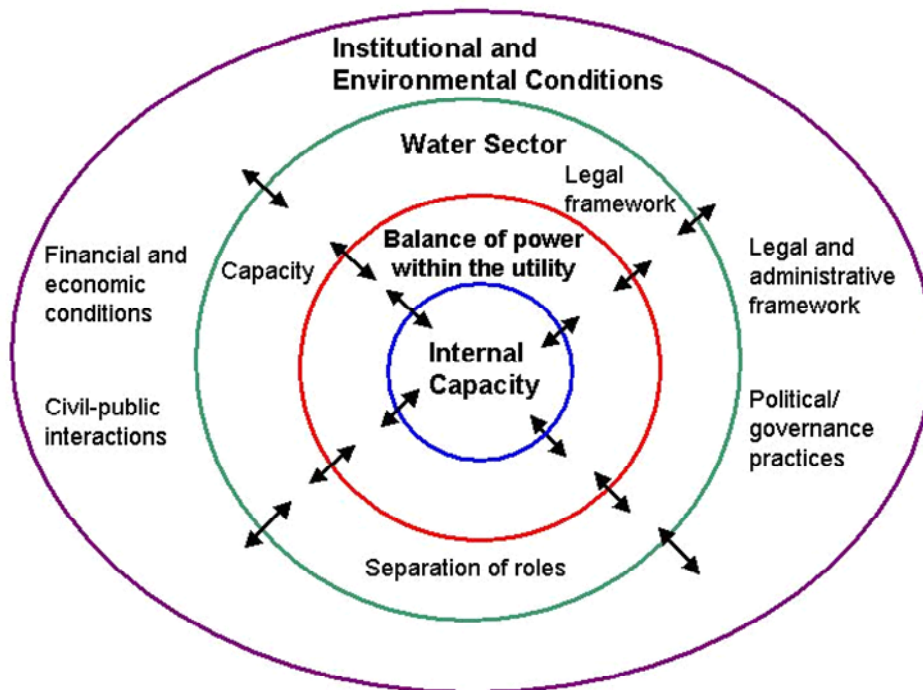


Figure 1: The dynamics of cities

1. Urban Management an integrated approach!

Urban management is a relatively new topic, which has gained increasing importance due to a rise in urbanization and a wave of decentralization programs in recent decades. The dynamics of cities can be expressed in the golden triangle: urban development is the result of migration and entrepreneurship in a dynamic context created by policies and urban managers.

Solid waste management is one of the functions that usually has been devolved to local government in a number of developing countries (Van Dijk, 2006). Its proper handling of this task is often taken as an indicator of the successfulness of urban reform (Van Dijk and Oduro-Kwarteng, 2007). A number of PhD has been finished on solid waste and urban management in Africa. The importance of the institutional and physical environment is illustrated in the following picture, which put a water utility in its societal context and describes the interactions with the legal and institutional context. The situation is not different for a municipality or a solid waste company. Based on research on solid waste in Ghana (Awortwi, 2003 and Obrih-Opareh, 2003) and Kenya (Karanja, 2005 and Mwangi, 2003) we will pull together the evidence with respect to solid waste and urban management in Africa. Besides private enterprises, non governmental organizations (NGOs) may also play a role in activities like solid waste collection, sanitation and public awareness programs.ⁱⁱⁱ



The proper handling of this task is often taken as an indicator of the successfulness of urban reform. Public services delivery has been failing in developing countries for a long time (Van Dijk, 2006). The expectation was that decentralization and private sector participation in developing countries would improve service delivery, which has often not happened. Obviously, decentralization and private sector participation alone are not enough, if proper policies, strategic frameworks for performance measurements and

regulations are not strictly followed. The solution to poor service delivery will depend not only on the private sector involvement but also on the capacity of actors in solid waste, institutional arrangements, and the ability of the Local Governments or independent regulator to monitor performance, regulate and facilitate the solid waste service delivery. We will present the experiences on solid waste and city management in some African countries. It is important in the case of solid waste to follow the value chain approach (Van Dijk, 2008a). The start of a better system lies in separation and treatment at the source. Subsequently the collection and transport requires attention before focusing on the treatment and possible reuse options.^{iv} In between the dumping site and existing treatment facilities need to be studied. Not only we distinguish different stages in the process, we also like to point to the role of all the different actors. From the households to the collectors and from the treatment plant operators to the people involved in informal collection and recovery. Each phase and operator has its own activities and economics. The number of phases and actors makes management of solid waste so complicated.

A definition of urban management

In Van Dijk (2006) the following definitions of urban management are provided:

“Local authorities focus on the major issues identified by the population and pay attention to the most important problem: the further development of the urban economy”

However, for me this is not enough and so I suggest defining urban management as:

‘the effort to co-ordinate and integrate public as well as private actions to tackle the major problems inhabitants of cities are facing in an integrated way, to make a more competitive, equitable and sustainable city’

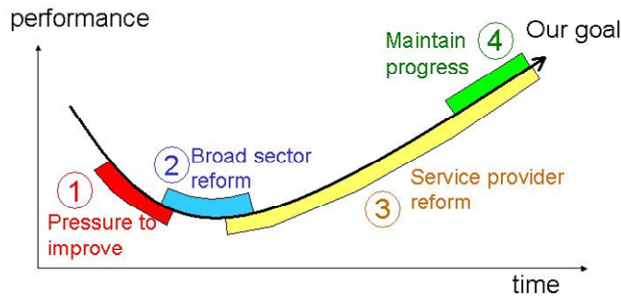
A key element of this definition is that urban issues are related to each other:

1. An integrated approach to urban management should study with all these issues in relation to each other
2. If certain issues are related to each other, the proposed solutions should also deal with the problems in an integrated way
3. The urban manager implements the solution after consulting with all the stakeholders

An example of an integrated instead of sectoral approach to urban management can be found in Van Dijk (2006: 164). One is relating to a housing project and one shows an integrated approach to urban infrastructure development, distinguishing new urban development schemes, inner city development or slum improvement activities.

2. Reforms to improve the performance of the municipality

Urban managers are responsible for the necessary policy reforms to improve the level of service delivery and to increase the competitiveness of their economy. However, municipal councils also have to deal with good governance issues, with urban environmental issues and with poverty. The idea is that through the reforms the performance of the municipality will increase.



Performance municipality after pressure to reform

3. What is new in urban management: the New Public Management

It is important to use theories, these are summaries of what we know already. Three theories are in particular important for urban management and presented in Van Dijk (2006):

1. Decentralization creates space for urban management
2. Good urban governance through the New Public Management (NPM)^v
3. A theory of urban competitiveness

I will come back to these theories in the following sections. You may ask why these theories: Decentralization creates the framework for an urban manager, but check: which functions and responsibilities and finance?

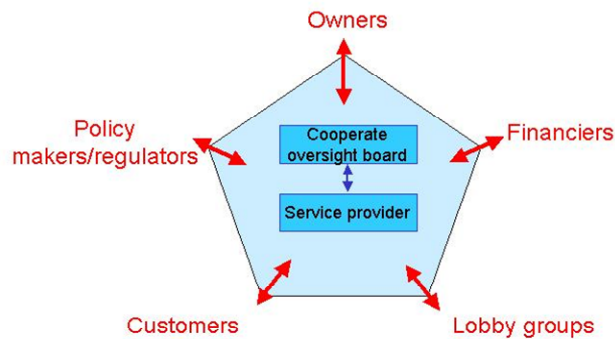
1. Achieving sustainability or ecological cities, besides dealing with urban poverty and social exclusion are important objectives for urban managers;
2. Improved service delivery requires more efficient institutions, through NPM!
3. Competitiveness is a reality in the global economy for global cities (Sassen, 1983).

The EU-funded SWITCH project in different demo-cities carried out by UNESCO-IHE together with the PhD studies allow the comparison of different institutional and technological options to draw the conclusions for urban Africa about a different way of dealing with waste. The project wants to achieve a paradigm shift, moving from traditional technologies to more eco-sanitary (ecosan) options in the ecological city of the future.

4. Autonomy OK, but what is accountability?

What are the leading ideas of the NPM? We think in terms of offering a menu of reforms. The key terms in the NPM are autonomy, accountability, customer orientation and market orientation. They will not be explained here (Van Dijk, 2006). However, Awortwi (2003) work stands out in this respect, since he tried to identify the conditions necessary for the NPM theory to work. Having financial cost recovery systems in place is an important one!^{vi}

The accountability kite



The discussion about NPM is related to good governance discussion. It works with contracts and performance indicators. Sometimes: good governance is called NPM, but that is too simple! I give an example of applying the theory in my chapter 5 on improved urban service delivery in drinking water in Addis Ababa, the capital of Ethiopia. A question is which time horizon you want to use in the reform process. The so-called Kingdom curve distinguishes the short, the medium and the long term. We like to add that we are continuously striving for the best combination of reforms, or the best fit!

Figure 1: NPM formalizes the link between the utility and its environment



The expectation was that decentralization and private sector participation in developing countries would improve service delivery, which has often not happened. Obviously, decentralization and private sector participation alone are not enough, if proper policies, strategic frameworks for performance measurements and regulations are not strictly followed.^{vii} The solution to poor service delivery will depend not only on the private sector involvement but also on the capacity of actors in solid waste, institutional arrangements, and the ability of the Local Governments or independent regulator to monitor performance, regulate and facilitate the solid waster service delivery.

5. What are the issues?

It is possible to draw up a long list of issues, but in the end the stakeholders determine what the priorities are, for example (for a systematic treatment, see Van Dijk 2008b):

1. Urban poverty and unemployment
2. Low level of service delivery
3. Not enough houses, or low quality housing
4. Slums
5. Poor governance
6. Lacking financial means
7. A lack of competitiveness of cities and no capacity to attract private sector investment and promote employment
8. Limited capacity to deliver public services in an efficient manner, including environmental managerial capacity
9. No sustainability: how to achieve becoming an ecological city?
10. No integrated approach the real problems of cities
11. No autonomy, accountability, consumer or market orientation
12. No attention to problems of social exclusion

6. What about the dynamics of cities?

The essence of urban management is that the local authorities should focus on the major issues identified by the population and pay attention to the most important problem: the further development of the urban economy.

Urban managers can help to create a dynamic urban economy, which can help to tackle a number of social problems. Jane Jacobs (1970) already pointed to the importance of a good economic basis for the development of cities. It creates jobs for the people and financial means for the urban manager.

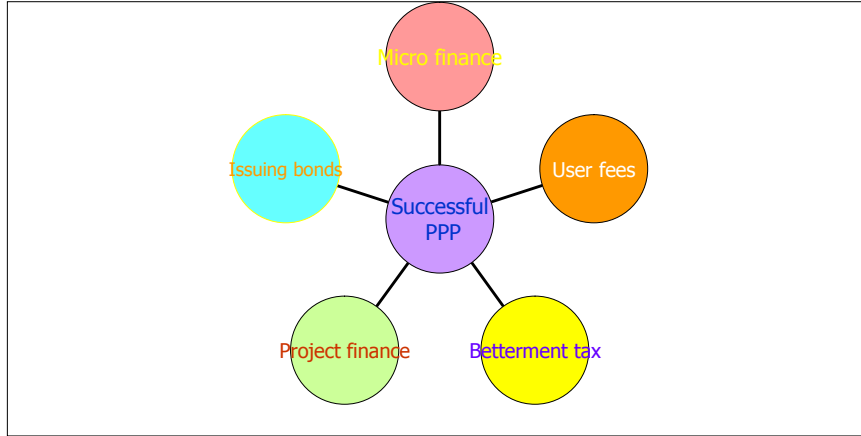
The issue should be phrased as how can a city compete at the global level? Although the urban population may not immediately understand this, it is the task of the politicians to explain the influence of this competitive environment and the need to develop a strategy to deal with it.

Table 1: How can we finance urban development alternatively? Instruments for infrastructure finance

From more traditional finance	To more alternative finance
Loans or bonds	Microcredit to finance water connections
Municipal Infrastructure Development Funds, for example	Rotating savings and credit associations (ROSCAs) to link traditional savings with credit
<ul style="list-style-type: none"> • Investment/capital funds • Trust fund • Endowment fund 	Private sector involvement
BOT (Build Operate Transfer)	Project finance
Subsidized entry fees	Design, Finance, Build and Operate (DFBO) and ROT (Rehabilitation Operate Transfer)
Higher levels of government financed out of general or specific tax revenues	Hedging (futures/options) to cover risks
State Level Finance Institutions	Pooled Finance Development Fund

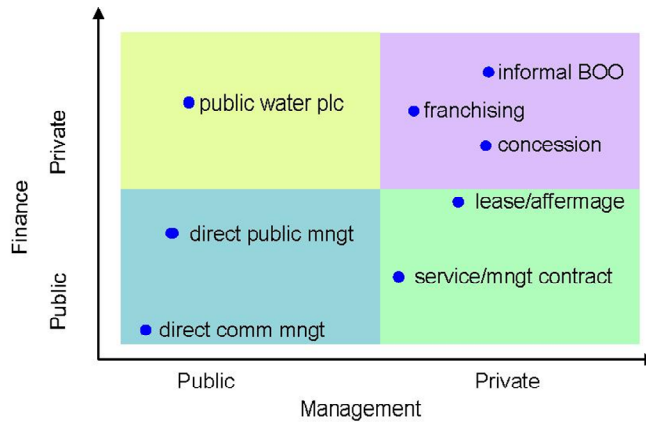
It is also possible to work more with private sector finance, see the figure.

Alternative ways of financing



8. Who is the real urban manager?

Finance and management dimensions of different forms of PSI in water and sanitation



It is sometimes difficult to say who the real urban manager is. I ran in to this problem in India and China. However, at certain levels leaders manage to bring actors together and succeed to implement a well-defined strategy. These are the people I am talking about.

There are several books on urban development (Brotchi 1999, Leahy et al., 1970), urban economics (O’Sullivan, 2007 and Thompson, 1995) and urban government Freire and

Stren, 2001). Van Dijk (2006) is a systematic treatment of the critical urban management issues facing developing countries. The volume brings together a number of theoretical approaches and practical experiences in order to study the economic and financial aspects of urban management.^{viii}

The blurb of the book announces that “the author argues that urban managers have to make their cities more competitive via the new opportunities provided by decentralization, and suggests that the formulation of a development strategy and the use of elements from new public management theory will improve urban governance and service delivery”.^{ix}

In addition, emphasis is placed on the importance of involving different stakeholders, which will lead to an integrated analysis of urban problems and, therefore, integrated solutions. Related issues such as urban environmental sustainability and the role of modern information technology are also explored in detail. The book concludes with a review of the emerging new themes at the forefront of contemporary urban management studies. Topics like metropolitisation, alternative roles for the private sector and building ecological cities are mentioned.

Box 1: Table of contents of Managing Cities in Developing Countries

1. Introduction
2. New opportunities and challenges for urban management
3. A theoretical framework for urban management
4. What is urban management?
5. Methods & tools for Urban management
6. Improving urban service delivery: water and sanitation in Addis Ababa
7. Urban environmental management in cities in the Netherlands
8. Financing options for urban infrastructure in India
9. The use of information technology in Urban management
10. Urban employment promotion, the importance of micro and small enterprises
11. Urban management in Nanjing and the role of the IT sector
12. Competition based on successful urban management: Pearl river Delta versus Yangtze River Delta
13. Conclusions: a different type of UM, emerging themes

9. Urban management and solid waste issues in Africa^x

A number of case studies have been undertaken of solid waste management in African cities. We will briefly discuss four PhDs on the topic in the Netherlands before drawing some general conclusions and identifying the implications for further research.^{xi} Solid waste management in Nairobi Kenya is the title of Karanja (2005) and the title of Mwangi (2003) is Challenges of urban environmental governance, participation and partnerships in Nakuru, Kenya.

Karanja (2005) intends to identify the range of actors and institutional arrangements and the extent to which they contribute to sustainable development. This is the broad aim of her thesis. In a more narrow sense she gives a very detailed and rich picture of the practices of solid waste management in Nairobi. In Karanja (2005) we very much like the chapter on the role of the private sector, since it is balanced, showing the successes and what has gone wrong. She takes an actor perspective and describes quite well the role and interests of different actors.

Mwangi (2003) takes a slightly broader approach looking at the challenges of urban environmental governance. He emphasizes two aspects, the importance of participation and partnerships in the case of Nakuru municipality. However, partnerships are defined very broadly, making it difficult to see what distinguishes them from normal commercial subcontracting. Mwangi formulates a large number of recommendations at the end of his study, but they are only partially based in the analysis of his case.

Two other PhD studies deal with solid waste and urban management in Ghana (Awortwi, 2003) and Obirih-Oparah (2003). Awortwi shows that partnerships also provide additional resources to local governments coping with increased responsibilities. When properly implemented, the interface between local government and other actors in service provision will diffuse power to the extent that no single actor is able to dominate (Awortwi, 2003). However, transparency measures are essential, including open selection processes, open procedures on who awards contracts, certifies completion of work and authorized payment (Awortwi, 2003). In his book he identifies the conditions for the new public management (NPM) theory to work. This is reflected in the title: *Getting the fundamentals wrong*. He strongly argues that the right fundamentals are not implemented to allow the positive effects of NPM to appear for example in the solid waste sector.

Obirih-Oparah (2003) carries as subtitle: *Assessing the impact of decentralization and privatization on urban environmental management*. Although he starts out very critically about these trends he draws the conclusion that the people like privatization, mainly because they are so disappointed about the actual results of the government at that time. The study is based on household surveys (400 households) and focuses on attitudes and preferences of the public. The people interviewed have clear ideas about the desired improvements. His conclusion on the existing Public Private Partnerships (PPP) is important. In the solid waste sector in Accra they were important, until the government did not pay its contribution any more. In the case of Kumasi this risks happening again (Oduro-Kwarteng, 2007).

The methodology of solid waste studies in Africa

Many of the studies of solid waste studies in Africa are very descriptive, although they are sometimes based on surveys. Other critical questions can be asked:

1. Are these examples of the case study approach of Yin (2003)? It requires a conscious choice of propositions, sample and unit of analysis and the analysis of the data (Van Dijk, 2007)? Secondly, even if the city is a case, usually a sample of household or solid waste companies is studied, which means we are

- drawing representative samples and are doing surveys, leading to statistical rather than analytical generalization!
2. Do we only go for variables that could be measured, while a lot of the observations made are very qualitative!
 3. Have the authors really assessed the impact of all the actors and the existing institutional framework and solid waste system?
 4. Is the household the appropriate level for understanding this activity?

Some of the studies are undertaken by researchers with a social science background and some by technical specialists. One notes the differences in emphasis. There is no real example of a multi-disciplinary study yet. Also the scope of the studies differs substantially despite sometimes quite similar titles.

The importance of a theoretical framework

One sometimes wonders what is the theoretical framework of these PhDs? It seems the PhD theses would have been better if they would have used such a framework. There seem to be three possible approaches:

- a. The NPM (new public management, emphasizing market and customer orientation, autonomy and accountability to improve urban public services (Schwartz, 2006);
- b. Institutional economics: the agency theory perspective building on the theory of property rights and principal agents (Alchian and Demsetz, 1972);
- c. Institutional economics: the transaction cost economics perspective (North, 1993).

The essence of NPM is promoting good governance. This is a step forward in urban management, because urban politicians and managers are now more than ever accountable for what they are doing. Accountability is one of the key concepts of the NPM theory, a theory that is revolutionizing public management by putting the emphasis on contracts and autonomy, while stressing the importance of market orientation and customer orientation. The challenge for urban managers is to make this theory work (Van Dijk, 2006).

Karanja (2005) uses the sustainable development theories. However, this is unsatisfactory, because she doesn't really come back to it, but only use it as a framework in the background. There are no hypotheses (or propositions) derived from it and put to a test. It would have allowed you to give appropriate weight to the different factors playing a role.

A problem with this kind of research is what is expected from the theory and what is happening in reality. We noted big discrepancies. For example in Kumasi the municipality is supposed to pay the collectors of solid waste, but for different reasons it has not been able to do so in 2006. This may eventually lead to a collapse of the system.

Importance of appropriate policy context and regulation

Policy analysis and evaluation focus on the process of policy formulation, implementation, and evaluation. There are three mechanisms of regulating public services in cities: price

regulation, service quality regulation and access to information regulation. Regulation is defined as “sustained and focused control, exercised by a public agency over activities valued by a community (Selznick, 1985). One may wonder what is more important: a good regulatory framework, or working in a context in which people have confidence. In countries like China and in Tanzania the regulatory framework may not be in place, but the operators seem to have confidence in the new policies, which makes it much easier to implement them.

In Karanja (2005) the lack of appropriate policies and regulation comes back several times. However, she has not done a real policy impact analysis trying to assess the effects of existing policies and regulation in a systematic manner. One reads the politicians are corrupt, the council is powerless and the people don’t want to be regulated, but rather stay informal. In her assessment of the regulatory framework (page 74) a number of the relevant factors is mentioned, but no weight can be given to them.

For example, according to the Public Health Act in Kenya, the Department of Environment of Nairobi City Council (NCC) is responsible for the implementation of the solid waste policy, collection and disposal of waste, regulation and monitoring of activities of waste companies and generators of solid waste, enforcement of all laws and by-laws relating to solid waste, and coordination of actors involved in solid waste management. The private companies in Nairobi operate without any regulation, monitoring or supervision by the NCC (Karanja, 2005: 175). The private sector participation in solid waste collection is spontaneous, unplanned and open to competition without the NCC regulation. The companies violate many of the solid waste laws and by-laws, especially those on disposal.

The environmental sanitation policy in Ghana outlines the roles of the City Authority, Kumasi Metropolitan Assembly, but the implementation of the policy directives is not fully followed (Awortwi, 2003). The implementation of the national environmental sanitation policy in Ghana is not receiving the necessary attention and therefore influences the quality of solid waste service. The Kumasi Metropolitan Assembly has powers conferred on it by the Local Government Act 1993 (Act 462) to promulgate and enforce by-laws to regulate solid waste management, sanitation, cleansing and abatement of nuisance in the Kumasi Metropolis. Companies cannot operate without the approval of or license from the Kumasi Metropolitan Assembly (KMA). The three mechanisms of regulation (price regulation, service quality regulation and access to information regulation) are followed to some extent in Kumasi but still require improvement.

Role of the private or NGO sector in waste collection

The role of the private or NGO sector in waste collection is interesting, since there is not a clear natural monopoly like in other utility sectors. There are for example about 60 private companies providing solid waste collection and disposal services in the city of Nairobi. The more prevalent type of private sector participation in the city is a spontaneous or unplanned open competition. Community Based Organisation (CBO) and private companies provide services to some residents in informal settlements. Survey of 128 households conducted by Karanja (2005) revealed that 48% of the respondents did

not receive solid waste collection service at all, 3% are served by the NCC, 4% by CBO and 45% relied on private companies. The study revealed that residents in the high and middle income areas relied on private companies for solid waste collection and disposal. Out of 1500 tonnes of daily waste generated in Nairobi less than 25% (367 tonnes) is collected by both public and private sectors (Table 2).

There are six private companies involved in solid waste collection and disposal services in Kumasi. The main mode of solid waste collection in Kumasi are the communal collection (on the average, 82% of waste collected) and house-to-house (18%) (Table 1). The total waste collected on the average was 545 tonnes per day out of 1200 tonne/day. Kumasi Metropolitan Assembly (KMA) and the private companies collected on the average about 55% (545 tonnes) of solid waste generated in Kumasi with the remaining 45% partly recycled/reuse and partly uncollected and indiscriminately disposed of within the environment creating aesthetic nuisance and health problems (Oduro-Kwarteng et al., 2006).

Table 2: Waste collected according to mode of collection

Mode of collection	Nairobi		Kumasi	
	tonnes	%	tonnes	%
Communal	334	91	447	82
House-to-house	33	9	98	18
<i>Total</i>	367	100	545	100

Source: Oduro-Kwarteng et al. (2006).

The involvement of the private sector in solid waste collection services has improved the solid waste management service coverage in Kumasi. Use is made of contracts and table 3 shows how much waste is collected by the public and private sectors in Nairobi and Kumasi.

Table 3 Waste collected by public and private sector

Mode of collection	Nairobi		Kumasi**	
	tonnes	%	tonnes	%
Public sector delivery	80	22	44	8
Private sector contracted by public	167	46	405	74
Private/CBO sector contracted by private*	120	32	96	18
<i>Total</i>	367	100	545	100

*Open competition and franchise contracts with private individuals.

**Oduro-Kwarteng et al (2006).

If one reads chapter six of Karanja (2005) one gets the impression that private sector involvement would not fly in Kenya. Is it again because of the lack of a regulatory framework, or because the urban informal sector has such a bad reputation in Kenya? In fact she gives a very balanced view of the operation of private operators in this sector. Without any preconceived opinions she identifies the conditions under which it works and when not (page 224). She suggests the conditions that can be improved in the external environment to allow the private sector to make a better contribution. Awortwi (2003) also argues that the right fundamentals are not implemented to allow a

disengagement from direct urban service delivery and contracting it out to multiple actors of private enterprises and CBOs.

Cost recovery mechanisms

Cost recovery is extremely important to make a solid waste management system to work and continue without too much subsidy if you want it to be financially sustainable. This requires finding out how much is paid through the contract with the municipality to the private operators, how much do the customers pay and is payment taking place at the dumping site as in the case of Kumasi. Again it is important to confront the theory (how it was conceived) with the practice (do all parties pay what they are supposed to pay?).

A large proportion of the residents in Nairobi do not pay user charges due to the inadequate arrangements for its collection (Karanja, 2005:149). The user charges in Nairobi are relatively low (US\$ 0.065) since waste collection is treated as “public good”. The user charge does not constitute a significant source of revenue for the NCC since it is too low and inefficiently gathered. The institutions, commercial enterprises and some households are served on a ‘private’ basis with the private companies without NCC regulations and monitoring and pay as high as US\$ 37.5 per month. The charges for waste disposing at the landfill (tipping fees) range from US\$ 0.5-1.0 depending on the vehicle capacity.

The residents in Kumasi who are served by house-to-house collection pay an amount of US\$ 2.7 (25000 cedis) per month for the service. All the residents who are served by communal collection service currently do not pay for the service. The private operators collecting waste from house-to-house recover cost from user fees and receive no subsidy from KMA except one company which started the first house-to-house pilot scheme. The KMA recover cost of communal solid waste services from local government taxes and funds from central government. The increase in coverage of the house-to-house service will directly decrease the cost on communal collection contracts payments by the KMA. The sustainable solid waste management in Kumasi can only be realized if cost recovery policy is pursued.

We have learned that the link with some kind of cost recovery system is extremely important. The underlying assumption is that people are willing to pay for solid waste and other urban services if they know they will get them and that they will get good quality services (World Bank, 2003). Only then there is a chance that a cash flow will be generated by the investment, which allows the local government to supply the service on a sustainable basis and to repay loans or service bonds. An effective and equitable tariff system for urban infrastructure is a real priority in most countries studied.

Efficient organisation of waste collection and processing

Economic and technical efficiency are key to achieve a sustainable system. We claim that the NPM provides an integrated approach to improving the efficiency of government organizations. Productivity is an indicator of efficiency and needs to be measured. In the end the system is financially sustainable if the revenues cover the cost, including the investments.

We know that the daily outputs of vehicles transporting the waste depend on the ability of the companies to plan collection routes, vehicle scheduling and operations and supervise operations. The efficient organisation of operations also depends on the monitoring and enforcement roles of the Local Authority. NCC in Kenya does not carry out scheduled collection in the city, especially in the informal settlements or slum. The provision of collection and disposal services was done only when needed. Waste heaps are left in the city to decompose. The monitoring and enforcement of the collection, transportation and disposal activities of waste companies are inadequate because of weak enforcement of NCC by-laws (Karanja, 2005).

The private companies in Kumasi have managers who in charge of supervision of field operations. Some of the companies did not comply with the obligations in the contracts awarded by KMA but they were not sanctioned as indicated in the contracts. The quality of solid waste service rendered by the companies is inadequate because of weak enforcement of the by-laws (Awortwi, 2003).

Environmental friendly and energy efficient technologies

Composting of organics in the cities is minimal (Karanja, 2005; Awortwi, 2003). Composting of organic waste makes available nutrients for soil replenishment and reduces amount of waste to be landfilled. The recycling of organic solid waste using appropriate technologies will contribute to sustainable solid waste management.

There are a number of initiatives with respect to solid waste management in Africa. The following box summarizes an initiative for the East African region. It is a project carried out by the International Labor Organization (ILO), which promotes waste collection and treatment in East Africa.

Box 2: ILO’s municipal service delivery project in the Eastern Africa region

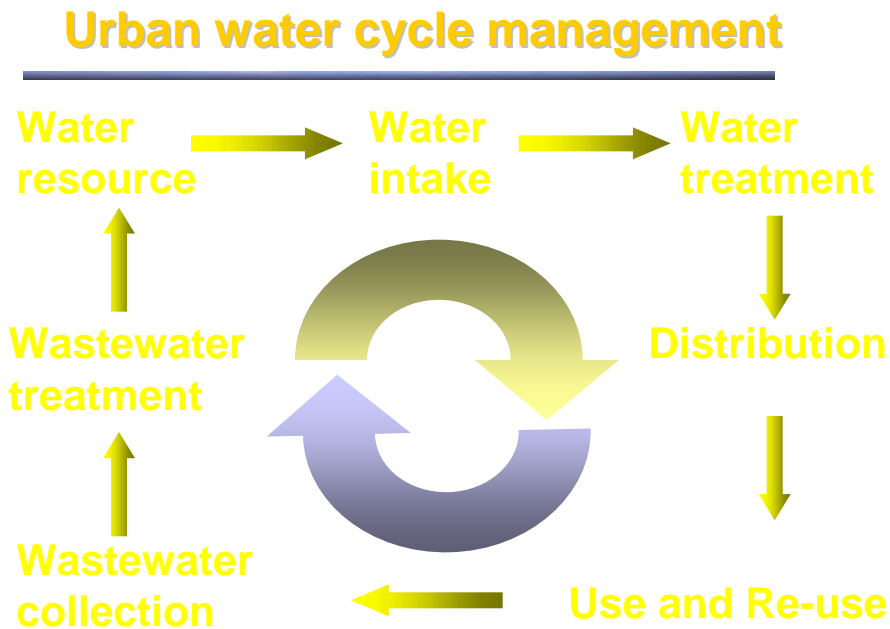
Dr. Kumbwaeli W. Salewi, the regional manager of the municipal service delivery project in Eastern Africa at the ILO Office in Dar es Salaam and his colleague, Mrs. Alodia Willam Ishngoma, national program officer employment creation in municipal service delivery project in the Eastern Africa region, also at the ILO Office in Dar es Salaam. They explained their approach of developing the urban informal sector by subcontracting solid waste collection and treatment to small enterprises. I received a training manual and they asked me to provide comments (ILO, 2005). Training manuals is part of their approach to the issue and they work with local organizations to develop the material.

10. How can we achieve ecological cities?

There are five principles to achieve ecological cities:

- Integrated water resources management: closing the water cycle (see the figure below)
- Energy management, reducing the greenhouse gases
- Waste minimization and integrated waste management^{xii}

- Objectives concerning justice: equality
- Managing urban risks



Conclusions

The different PhDs contain a large number of policy conclusions, which increases the policy relevance of this type of research. However, one has to be careful with jumping to easily to conclusions in cases where the empirical basis is meager and the number of cases is limited.

The implications of this overview for further research are important. One the challenge is to go beyond the fifth or sixth case study and to try to come up with more general insights. Secondly, it is important to specify the theoretical framework and to try to deduce testable hypotheses from it, for example concerning the conditions under which private sector involvement can be successful. Finally, interesting topics are the use of private finance (which doesn't always require the institution to be privatized), and the possibilities of an ecological cities approach should be explored.

It will be necessary to focus research on the topic of ecological cities, to study certain phases in the process and to deal only with some of the major actors at the time. However, the coordinating role of local governments and urban managers should not be underestimated. In fact it is their task to coordinate a multiplicity of actors. Such is the essence of urban management: participatory, inclusive and with all actors.

The role of the private or NGO sector in waste collection is interesting, since there is not a clear natural monopoly like in other utility sectors. There are for example about 60 private companies providing solid waste collection and disposal services in the city of

Nairobi. The more prevalent type of private sector participation in the city is a spontaneous or unplanned open competition. Community Based Organisation (CBO) and private companies provide services to some residents in informal settlements.

The involvement of the private sector in solid waste collection services has improved the solid waste management service coverage in Kumasi. Use is made of contracts and different cost recovery mechanisms. Economic and technical efficiency are key to achieve a sustainable system. We claim that the NPM provides an integrated approach to improving the efficiency of government organizations. Productivity is an indicator of efficiency and needs to be measured. In the end the system is financially sustainable if the revenues cover the cost, including the investments.

The main issues coming out of the current research on solid waste and urban management are: (1) the importance of appropriate policy context, including the necessary regulation, (2) a role for the private or NGO sector, (3) the introduction of cost recovery mechanisms, (4) more efficient organization of waste collection and processing of waste, and (5) the possibility of introducing environmentally friendly and more energy efficient technologies.

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Notes

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ⁱⁱ The EU-funded SWITCH project in different demo-cities carried out by UNESCO-IHE together with the PhD studies allow the comparison of different institutional and technological options to draw the conclusions for urban Africa.

ⁱⁱⁱ For such an example in Bangalore, in India see Van Dijk (2006).

^{iv} We don't distinguish here between the different treatment options, which may range from biological to thermal and from sanitary land filling to biological treatment prior to landfill.

^v Awortwi (2003) work stands out in this respect, since he tried to identify the conditions necessary for the NPM theory to work.

^{vi} Cost recovery is extremely important to make a solid waste management system to work and continue without to much subsidy if you want it to be financially sustainable. This requires finding out how much is paid through the contract with the municipality to the private operators, how much do the customers pay and is payment taking place at the dumping site

^{vii} In Karanja (2005) the lack of appropriate policies and regulation comes back several times.

^{viii} According to the endorsements: 'Some of the most perplexing problems in developing countries today have their roots in the explosion of urban populations and the stresses and strains this state of affairs imposes on effective service provision. In this masterful book, Meine Pieter van Dijk provides a general framework for thinking about these problems, together with a strategic vision for resolving the predicaments that they engender'. Allen J. Scott, University of California, Los Angeles, USA and "Van Dijk's book gives a much needed structure to this knowledge domain. His emphasis on institutions will help practitioners, students, teachers and trainers side step the traditional public-private sector stereo-types that are frequently still deeply embedded among professionals and public administrators in developing countries. His emphasis on decentralization and the clarification of responsibilities between stakeholders and partners will help his readers find workable new solutions that may be quite unique to their local context". Chris Webster, Professor of Urban Planning, Cardiff University, UK

^{ix} The publisher added: this is important new volume that will be an essential resource for students, scholars and practitioners with an interest in urban planning, development and management.

^x Based on Van Dijk and Oduro-Kwarteng (2007).

^{xi} Oduro-Kwarteng (2007) is a proposal for a PhD study on this topic in Ghana.

^{xii} Composting of organics in the cities is minimal (Karanja, 2005; Awortwi, 2003). Composting of organic waste makes available nutrients for soil replenishment and reduces amount of waste to be land filled. The recycling of organic solid waste using appropriate technologies will contribute to sustainable solid waste management.