

MANAGEMENT CONTROL SYSTEM IN SOLID  
WASTE MANAGEMENT NETWORK IN MALAYSIA

BY

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## ABSTRACT

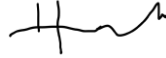
Privatisation of solid waste management (SWM) in Malaysia occurred in year 2011. After privatisation, SWM is being managed by multiple entities, from both the public and private sectors. Due to the involvement of many entities with diverse interests, the management control system (MCS) is crucial to align these interests. Therefore, this study examines the role of MCS in creating a stable SWM network. In particular, the study is designed to understand how the MCS is translated to create a stable SWM network. Drawing on the Actor Network Theory (ANT), the study discusses the use of Key Performance Indicators (KPIs) as the main control mechanism in the privatisation of SWM. Using an interpretive case study approach, the study uses a data triangulation approach comprising three sources: interviews, documents review and observations. The participants were selected based on their involvement in the tasks of SWM from three different entities, Department A, Corporation X and Champion. The study reveals that KPIs play an important role as the network control based on the monetary performance indicator. KPIs are linked to the performance of the concession company. The study also finds that most of the activities in the intra-organisational relationships are influenced by inter-organisational relationships. Result and action controls used by the concession company are all based on KPIs and concession agreement (CA), which are the main inscriptions in inter-organisational relationships. This study contributes to the body of knowledge by revealing that KPIs which are part of the CA, can align the interests of all actors in a privatised SWM network. The study also shows that CA is the main reference that shapes the implementation process of privatised SWM. Theoretically, the study shows the relative power of the ANT to explain that the main inscriptions, which are KPIs and CA, are used to create stability of the network. For the practitioners, the study demonstrates how the same KPIs can be used in both inter-organisational and intra-organisational relationships, and can also be used in both the public and private sectors.

## مُلخَّصُ البَحْثِ

كانت خصخصة إدارة النفايات الصلبة في ماليزيا عام 2011، وبعدها صارت تُدير النفاياتِ الصلبة وكالات عدة من القطاعين العام والخاص، ونظرًا إلى الاهتمامات المتنوعة لبعض الوكالات المشاركة؛ يُعدُّ نظام التحكم الإداري ضروريًا لمواءمة هذه الاهتمامات، وعليه؛ يتناول هذا البحث دور نظام التحكم الإداري في إنشاء شبكة مستقرة لإدارة النفايات الصلبة، وتحديدًا؛ فهم هذا الدور بالاعتماد على نظرية شبكة العوامل، ويناقش البحث استخدام مؤشرات الأداء الرئيسة من مثل نظام تحكم رئيس في خصخصة إدارة النفايات الصلبة، وباستخدام نهج دراسة الحالة التفسيرية؛ توسَّلَ البحث منهج تثلث البيانات الذي يضم ثلاثة مصادر؛ المقابلات، ومراجعة الوثائق، والملاحظات، وقد اختير المشاركون بناءً على مشاركتهم في مهام إدارة النفايات الصلبة من ثلاثة كيانات مختلفة؛ القسم A، والشركة X، والنصير، وقد بيَّنت النتائج أن لمؤشرات الأداء الرئيسة دورًا مهمًا في التحكم في الشبكة؛ استنادًا إلى مؤشر الأداء النقدي، وترتبط تلك المؤشرات بأداء شركة الامتياز، كما أن معظم النشاطات في العلاقات داخل المنظمة تتأثر بالعلاقات بين المنظمات، وتعتمد ضوابط النتائج والإجراءات التي تستخدمها شركة الامتياز على مؤشرات الأداء الرئيسة واتفاقية الامتياز، وتمثل الخطوط الرئيسة في العلاقات بين المنظمات، ومن ثم؛ يسهم هذا البحث في الكشف عن أن مؤشرات الأداء الرئيسة التي تعد جزءًا من اتفاقية الامتياز، ويمكنها أن تتفق مع مصالح جميع الجهات المؤثرة في شبكة إدارة النفايات الصلبة المخصصة، ويوضح البحث أيضًا أن اتفاقية الامتياز هي المرجع الرئيس الذي يشكل عملية تنفيذ إدارة النفايات الصلبة المخصصة، أما نظريًا فيُظهر البحث القدرة النسبية لنظرية شبكة العوامل لتوضيح أن الخطوط الرئيسة (مؤشرات الأداء الرئيسة، واتفاقية الامتياز) تُستخدم لإنشاء استقرار الشبكة، وأما للممارسين فيُوضح البحث كيفية استخدام مؤشرات الأداء الرئيسة نفسها في العلاقات في المنظمات وبينها، ويمكن أيضًا استخدامها في كل من القطاعين العام والخاص.

## **APPROVAL PAGE**

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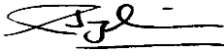
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## DECLARATION

I hereby declare that this dissertation is the result of my own investigations, except where otherwise stated. I also declare that it has not been previously or concurrently submitted as a whole for any other degrees at IIUM or other institutions.

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## LIST OF ABBREVIATIONS

ABC	Activity-based Costing
ABC Plan	The Action Plan for Beautiful and Clean
Act 672	The Solid Waste and Public Cleansing Management Act 2007
Act 673	The Solid Waste and Public Cleansing Corporation Act 2007
ATO	Australian Taxation Office
ANT	Actor Network Theory
AVLS	Automated Vehicle Location System
BPM	Business Process Management
BPO	Business Process Outsourcing
CA	Concession Agreement
CAQDAS	Computers Assisted Qualitative Data Analysis Software
CEO	Chief Financial Officer
DG	Director General
EPU	Economic Planning Unit
FA	Finance and Accounting
FAO	Finance and Accounting Outsourcing
GIS	Geographical Information System
GDP	Gross Domestic Product
GM	General Manager
GPS	Global Positioning System
HoD	Head of Department
HQ	Headquarter
<i>i</i> -MEMS	Intelligent Monitoring and Enforcement Management System
ITO	Information Technology Outsourcing
JICA	Japan International Corporation Agency
JKAS	Public Private Partnership Committee
JKT	Local Government Committee
KPIs	Key Performance Indicators
KPO	Knowledge Process Outsourcing
LOC	Lever of Control
MCS	Management Control System
MoF	Ministry of Finance
MSW	Municipal Solid Waste
MUHLG	Ministry of Urban Wellbeing, Housing and Local Government
NDP	National Development Policy
NPM	New Public Management
NWM	Master plan for National Waste Minimization
OBA	Open Book Accounting
PUU	Project Steering Committee
QITA	Quality Improvement and Technical Audit Department
RIC	Regional Implementation Committee
SLC	Service Level Committee
SMEs	Small Medium Enterprise

SMS	Short Message Services
SUK	State Secretary
SUM	Service Unit Manager
SWM	Solid Waste Management
TCE	Transaction Cost Economics
The Strategic Plan	National Strategic Plan for Solid Waste Management
UKAS	Public Private Partnership Unit

# **CHAPTER ONE**

## **INTRODUCTION**

### **1.1 INTRODUCTION**

This chapter provides a brief discussion about the research. It begins with the background of the study, followed by the discussion on the problem statement, objective of the research and research questions. This chapter concludes with the significance of the study.

### **1.2 BACKGROUND OF THE STUDY**

Management control system (MCS) is important for directing a company's activities towards the achievement of its objectives. MCS is a system of aligning the management of resources and the achievement of the company's objectives (Langfield-smith,1997). It is similar to the definition of MCS mentioned by Tessier and Otley (2012), that MCS is a formal procedure used to monitor the company's activities to ensure the accomplishment of its objectives.

In terms of control activities, it has been categorised in many ways. Langfield-smith and Smith (2003) summarised the categorisation by previous researchers as: (1) action/results controls; (2) formal/informal controls; (3) tight/loose controls; (4) restricted/flexible controls; (5) impersonal/interpersonal controls; and (6) financial/non-financial controls. He further explained that among the types of formal controls are standard operating procedures, budgeting systems and rules and regulations. On the



other hand, informal controls refer to controls that are not intentionally designed. It can be unwritten policies and the organizational culture.

Simons' (1995) levers of control (LOC) of the MCS have been used extensively in many previous studies. Simons' framework consists of four key control systems, namely the belief, boundary, diagnostic and interactive controls. Belief control is the system that supports the organisation because the purpose of the belief system is to establish the organisation's core value. On the other hand, boundary system deals with the establishment of behavioural constraints and acts as limits to the organisation's activities. Diagnostic control system is used to implement the current strategic plan of an organisation, and finally, interactive control is used to monitor the uncertainties and changes in the organisation's intended strategies (Tessier and Otley, 2012).

However, the traditional MCS is no longer suitable in the current business environment, where attention is now being focused on alliances (Otley, 1994). The alliances have led to the expansion of organisational boundaries; thus, a new MCS is needed to support it. Hopwood (1996) and Otley (1994) studied the wider management control functions and implications on the new business environment where businesses have started to focus on the core business only and outsource their non-core business functions.

In Malaysia, changes in the current business environment affect both the private and public sectors. The public sector in Malaysia comprises a three-tier government and the third tier in the hierarchy is local governments. Like other public agencies, local governments are expected to provide satisfactory services to the public. The function of local governments is to provide services to the people, which are categorized into

mandatory and discretionary services (Kuppusamy, 2008). The mandatory functions of local governments include rubbish collection, maintenance of drainage, sewerage treatment, road maintenance, street lighting and activities pertaining to public health. On the other hand, discretionary functions of local governments include all development functions, such as providing amenities, recreational parks, housing and commercial activities, markets, sporting facilities and community centres.

The range of services provided by the local governments is so extensive, and so, it is a challenge for them to perform efficiently with limited budget and other resources. Furthermore, local governments also have multiple objectives, such as ensuring the resources are used efficiently, services provided are in accordance with the law and there is transparency and accountability, which is different from the private sector where there is only one main objective, which is profit maximisation. This situation has created conflicts in assessing their performance and control.

Therefore, in the mid-1980s, the Malaysian government introduced public sector administrative reforms under the umbrella of New Public Management (NPM) for departments and other government funded agencies. The aim is to ensure that the services are delivered in an efficient and effective way and to improve the accountability of the public sector. Among the various practices and approaches introduced to re-engineer the public sector are privatisation, outsourcing and public-private partnership (Abdullah and Kaliannan, 2008).

Privatisation and outsourcing are relatively new economic policies. The aim is to downsize and reduce costs for the government. Services that are often privatised are airport operations, data processing, fleet or vehicle maintenance, hospitals, parking lots

or garages, public safety, residential solid waste collection and/or disposal, transit or transportation, water and wastewater utilities and vehicle towing or storage (Brooks, 2004).

A research sponsored by Deloitte Touche, the International City Management Association (ICMA) and the Privatisation Council in the United States, shows that public services that most frequently have been contracted out in the last five years include “solid waste collection or disposal (nearly 60%); vehicle towing or storage (45%); and building or grounds maintenance and services (nearly 45%)” (Brooks, 2004 : 468). The reason for solid waste collection and disposal to be the most popular service to be contracted out is because the cost involved for the private sector to enter and exit the industry is relatively low. Another reason is the abundant availability of inputs needed in the market, such as unskilled labour.

In Malaysia, privatisation of solid waste management (SWM) services became an alternative after the economic crisis in the 1980s. Although the process is referred to as privatization, the actual practice is outsourcing. This is because the government maintains the role as the pay master for the contractor appointed to provide the solid waste management services. Henceforth, the discussion focuses on outsourcing.

Outsourcing, as mentioned by Idowu, Omirin, and Osagie (2011), is a strategy used by local governments to provide high quality public services at lower cost. Abdul Aziz and Ali (2004) mentioned that there are three objectives of outsourcing in the public sector: first, to attain best practices, and improve the cost discipline and control skills of managers; second, to improve the service quality and management of local governments by focusing more on the core competencies and third, to gain access to

new technology and skills, and enhance the local government's capability to develop new products and services at reduced capital costs.

The advantages of outsourcing, especially by the public sector, include improved client responsiveness, better government decision-making, cost saving for the government and vendors, and assisting the local governments to utilise the private sector's learning experience and economies of scale ( Kakabadse and Kakabadse, 2000; Barretta and Busco, 2011; Johansson and Siverbo, 2011; Marques, Ribeiro, and Scapens, 2011). The result will be improved quality services than that provided by the local governments themselves, at a reduced cost to ratepayers.

Despite the above stated advantages of outsourcing, researchers, such as Das and Teng (2001) and Langfield-smith and Smith (2003) have discovered outsourcing process failure. Among the main reasons for the failure is the different objectives among the parties involved in outsourcing which has created problems to collaborate (Das and Teng, 2001; Kakabadse and Kakabadse, 2000).

In addition, the outsourcing relationship is a long-term relationship. In an outsourcing relationship, the contract serves as the regulatory document that plays the role of mediating the relationship between the parties involved. However, there is a possibility that the parties have difficulties in planning their activities ahead, and this situation leads to the risk of having an incomplete contract (Kakabadse and Kakabadse, 2000). Another risk is the potential for opportunistic exploitation of the dependence relationship that exists between partners. Earl (1996), in his study, identified several risks from the outsourcing process: possibility of weak management, inexperienced

staff, business uncertainty, outdated technical skills, endemic uncertainty, hidden costs, lack of organisational learning, and loss of innovative capacity.

To reduce the problems and risks in outsourcing, appropriate governance structures and good MCS have been suggested by Das and Teng (2001) and Spekle (2001). This is because MCS is an instrument that can influence the other party's behaviour to ensure that the desirable objectives are achieved (Marques et al., 2011a).

Hopwood (1996) and Otley (1994) are the first two studies that have drawn attention of accounting researchers to study the MCS and inter-organisational relationships. Many studies have consequently been conducted on MCS and inter-organisational relationships (for instance, Langfield-smith, 1997; Langfield-smith and Smith, 2003; Mouritsen, Hansen, and Hansen, 2001; van der Meer-Kooistra and Vosselman, 2006).

However, most of the research has been conducted in dyadic relationships, especially the relationship between buyer and supplier in supply chain management. Not much research work has been done on network relationships which involve many parties (Mauritsen, Mahama, and Chua, 2010). Further, in public organisations, as Barretta and Busco (2011) concluded, not much attention has been given to study the role of MCS in inter-organizational relationships, even though the outsourcing process in public organisations is showing an increasing trend after the introduction of NPM.

In Malaysia, as stipulated in Section 72 of the Local Government Act 1972, SWM services must be provided by local governments. According to this Act, local governments are expected to provide public cleansing services within their own jurisdictions and must dispose all the waste collected in a sanitary manner (Latifah-

Abd-Manaf, Mohd-Armi-Abu-Samah, and Nur-Ilyana-Mohd-Zukki, 2009). Of late, SWM has become a major challenge because its impact on health and environment is huge (Abas, 2014). There must be proper standards and procedures in place to manage solid waste and to ensure the stability of the environment and the community.

Over the years, the population, urbanisation, industrialisation and economic development have increased. This situation has resulted in the generation of a huge amount of solid waste in residential areas, and this situation will damage human health and cause economic, environmental and biological losses if solid waste is not managed well (Afroz and Masud, 2011).

Most previous authors have documented the problems associated with handling the process of solid waste. Othman (2002) concluded that problems in managing solid waste are lack of infrastructure, and weaknesses in financial and technical resources. Manaf et al. (2009) included low collection coverage and irregular collection services, crude open dumping and burning without air and water pollution control, the breeding of flies and vermin, and the handling and control of informal waste collection, as the problems faced by local governments related to waste management. Financial burden of local governments is an often mentioned problem of waste management (Abas, 2014; Afroz and Masud, 2011; Othman, 2002; Yahaya, 2008). It has been reported that in Malaysia on average, 50% of the total local government's operating budget is spent on managing waste and half of the amount represents the collection of waste only (Manaf et al., 2009).

As a consequence, the privatisation process of urban SWM from local governments to the private vendors was initiated in 1993 (Afroz and Masud, 2011;

Periathamby and Hamid, 2009) and implemented in 1996 (Latifah-Abd-Manaf et al., 2009; Othman, 2002; Yahaya, 2008). This decision was influenced by the objective of the government to provide an integrated, well-planned, well-managed, efficient and effective, technologically advanced SWM system (Afroz and Masud, 2011). Furthermore, the decision was seen as a solution to the problems faced by the local governments, including finance, lack of expertise, illegal dumping, open burning, and lack of proper solid waste disposal sites.

The privatization of SWM applied to collection services and public cleansing management services. The scope of collection services is limited as set out in the Appendix IV of the concession agreement which includes (1) Collection services for Contracted Solid Waste (mixed or sorted at source); (2) The provision and delivery of Receptacles to the premises; (3) The provision and delivery of vehicles and equipment; (4) Common scope of services as listed under common scope of services. Meanwhile, the scope of public cleansing management services is limited as set out in the Appendix V of the concession agreement which includes (1) Public Cleansing Management Services for: (a) Cleansing of public road (protocol, main commercial, industrial, residential, pedestrian bridge, flyover and tunnel); (b) Cleansing of public places under the supervision or control of the Local Authority; (c) Cleansing of public toilets; (d) Cleansing of public drains, (e) Cleansing of publicly operated hawker centres, publicly operated markets, Pasar Malam, Pasar Tani and Pasar Pagi; (f) Grass cutting at kerbside on public road and public places; (g) Clearing of illegally dumped Controlled Solid Waste; (h) Cleansing of public beaches; (i) Removal of carcasses; (2) The provision and delivery of service vehicles/machineries and equipment; and (3) Common scope of services.

To manage the changes, a new structure of SWM was implemented by the government. The new Department (disguised as Department A) and a corporation (disguised as Corporation X) was established under the Ministry of Urban Wellbeing, Housing and Local Government (MUHLG). The responsibility of Department A is to handle the issues related to regulations and conducting the operations; while the responsibility of managing solid waste and handling the concessionaries are under Corporation X. However, local governments would maintain their responsibility in terms of monitoring the cleanliness in areas under their jurisdiction.

With the change of the management system, the responsibility of SWM is now shared between private vendors and the government. The private vendors are responsible for SWM; while Department A and Corporation X, are responsible for monitoring the work done by private vendors. With the involvement of many parties in managing the solid waste, the implementation has become more complex. It involves different tiers of the government and the responsibility for management, operational and planning functions of waste management have been divided into different sections. Abas (2014) clearly showed the differences between waste management planning and implementing bodies would create a conflict. The conflict can be overcome using good control mechanisms.

Therefore, this study is carried out to understand the role of the MCS in creating a stable SWM network in Malaysia. As mentioned above, there are many parties involved in the management of solid waste after privatisation. Thus, the study investigates the influence and coordination of all parties involved in the process. This study uses the actor network theory (ANT) as a theoretical lens of the study. Under the ANT, parties involved are known as actors, and actors can be human and non-human