

**ASSESSMENT OF THE OUTSOURCED STRATEGIES FOR ON SOLID WASTE MANAGEMENT SERVICES IN CITY OF DODOMA**

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## **ABSTRACT**

*Effectiveness of solid waste management in developing countries is questionable. Outsourcing experience of the same in developing countries has led to a knowledge gap between what is theoretically known and what is actually happening in the field. In Dodoma the practice is still a new phenomenon started in 2018. Additionally, Dodoma City is facing rapid population, urbanization, industrialization and rapid increase in volume of waste. With mixed conclusion from other similar areas, it is not clear if outsourcing system in Outsourced Solid waste Management services in Dodoma is effective enough to deal with this volume of solid waste or not. The aim of this study was to examine the performance of strategies for Outsourced Solid waste Management services in City of Dodoma as a case study. Mixed approach using questionnaires and documentary analysis was used in the study. Sixty-five (65) respondents were selected purposefully and simple random comprising of Dodoma City Council officials-environmental Department, staffs from Green Waste Pro, Ward and Street Leaders, Business Communities, Households, While Quantitative data was analyzed by using Descriptive statistics and qualitative data was analyzed by using content analysis. It was revealed that there is greater beneficial difference in management of solid waste brought by outsourcing practice in terms of service coverage, service quality etc. The study also exposed that solid waste management in there years back has change since it was introduced in Dodoma and there is Improvement of services to the community which means each actors perform its responsibility effectively to ensure quality services and satisfaction, and reduce government burden in handling and provision of this services and making sure the city stay clean. On these grounds it is concluded that application of outsourcing in solid waste management system has directly solved the problem of poor management of solid waste in Dodoma City Council. However, outsourcing of solid waste management system may be more effective, critical alternative and bring the expected results if updating of legal instruments, and capacity building can be done among other important measures.*

## **INTRODUCTION**

The rapid urbanization that has been taking place during the 20<sup>th</sup> century virtually transformed the world into communities of cities and towns facing similar challenges on environmental issues in which most of them have to be addressed at international level (Smith,2010). There is a growing concern for the insufficiencies of solid waste management in developing countries (Khatib,2007). Effective waste management is essential for public health and for maintaining a healthy, safe and sustainable environment. If it is not properly managed, it can pose serious health and environmental problems and pollute our waters, soils and air (Niekerk, 2019).

Despite the fact that Local Authorities in developing countries lack or have limited capacity to financial and institutional structures, appropriate technology and operational mechanisms are needed for ensuring availability and sustainability of SWM services, the burden of SWM has been left to their shoulders. As a result, significant portion of the population does not have access to a waste collection service and only a fraction of the generated waste is collected. Most local authorities do not meet the target; as pointed out by Chinamo, (2003) local authorities are capable to collect and dispose only 20% to 30% of waste produced in their areas.

Among the ways to relieve the burden of SWM in LGAs is to involve the private sector through deployment of the outsourcing technique. (Bartone,2001) and Coad, (2005) suggest that private sector participation (outsourcing) is a technique to preserve market discipline and to convey private sector

management and technical expertise and private finance into public service to achieve cost efficiency and better service provision (improve service quality). According to (Palfreman, 2014)

While governments around the world increasingly resort to private sector involvement in solid waste collection service, its performance is still debatable (Kwarteng, 2011). For example, some studies like (Bartone,2001) and Coad, (2005) have found outsourcing effective and efficient mechanism of cost reduction in solid waste management due to application of commercial principles in the service, while others like (Kassim,2006), (Anderson,2011) and (Dorvil,2007) claim privatized waste management has resulted to inefficiency and weakening of the government's ability to control price. Moreover, (Van,2019) stressed general failure of privatization of solid waste management services in countries across Africa due to its failure to keep cities clean, provide an equitable service across poor and more wealthy residential areas, or provide decent jobs for solid waste management workers.

Therefore, these conflicting conclusions puts question mark on the effectiveness of outsourced solid waste management in developing countries. In Dodoma the practice is still a new phenomenon started in 2018. Additionally, Dodoma City is facing rapid population, urbanization, industrialization and rapid increase in volume of waste. With aforementioned mixed conclusion from other similar areas, it is not clear if outsourcing system in SWM in Dodoma is effective enough to deal with this volume of solid waste or not. This study aimed to examine the performance of outsourced solid waste management in this City.

## **LITERATURE REVIEW**

### **Theoretical literature review**

**System Theory:** It is a philosophical doctrine of describing dynamic relationships and interdependent between components of the system. It was first developed by the Biologist Ludwing von Bertalanffy in 1940s and letter on 1964 furthered by Ross Ashby. System theory was basically used to study three components; Wholeness, i.e., Looking at entire system; Organization, i.e., how different parts of a system work together; and Patterning, i.e., looking at what patterns are connected. System theories have two major categories namely closed and open systems. Unlike closed system, open system has extraordinary level of interconnectedness, interdependency, completeness and communication together with feedback to the environment where it operates. Outsourcing practice in this study is taken as an open system because it depends much from environmental factors to include government regulations, people, physical facilities and financial situation among other factors. Selection of a system theory to be applied in this study was just because solid waste management involves different actors/parts that need to work in uniform and a system (dependently and connected), however environmental influence to SWM activity led to the selection of an open system theory.

### **Input components of outsourced solid waste management; Private Agent Financial Wellbeing**

It is noted from (Ephraim,2013) that, financial wellbeing is the foremost input that affects the effectiveness of private organization in provision of public service under contract with local government. Once financial problem exists, the effectiveness and efficiency in service provision is affected. In SWM funds covers cost of the whole chain from collection to final disposal and treatment; i.e.,

**Effectiveness of outsourced solid waste management;** Under System Theory the improvements in solid waste management can be described as outputs. However, these can be assessed in relation to the primary objectives of adopting outsourced system in management of solid waste. The primary objective of Solid Waste Management (SWM) is basically the efficient utilization of resources available in the whole process of waste materials management to wide up scope and quality of service as well (Tchobanoglous, 2009).

**Improved quality of services;** A study by (Primy,2014) proved public private partnership to be a good solution to the management of environment. It revealed that 96.1% of solid waste management services to commercial/trade premises are done by contractors; this implies that contractors have a big role for handling solid waste management services in commercial/trade premises. Outsourcing has improved performance of the public sector by employing innovative operation and maintenance methods; reduced and stabilized costs of providing services by ensuring that work activities are performed by the most productive and cost-effective means; improved environmental protection by dedicating highly skilled personnel to ensure efficient operation and compliance with environmental requirements; and access to private capital for infrastructure investment.

**Reduced Government burden;** 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 Sao 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). Due to the fact that budget deficit is a common problem in African and developing countries Tanzania in particular, outsourcing has reduced burden to government as they are investing in core functions to include education, health, safe water and energy.

**Reduction of waste;** Collection and transportation of solid waste have been significantly improved by outsourcing practice and have reduced significantly the amount of waste in the street (Primy, 2014). Different sources observed worse situation of solid waste at Majengo market Dodoma from the year 2005 backward compared to now (after outsourcing solid waste management) because during that time there was little private organization to work in partnership with government for sustainable solid waste management.

### **Empirical literature review: Outsourced Solid Waste Management System**

From literature, mixed results are prevailing. Example, (Mbuligwe, 2003) indicated 30% (from 10% to 40%) improvement of solid waste collection from 1994 to 2001 in Dare salaam city council. While city council collects just 10% of total waste generated per day, private agents are collecting 24% of the same. However, the study recommends the use of recycling and composting activities as a supplement mechanism to the existing solid waste management practices. Similarly (Idowu, et al,2011) express a wide acceptance of private sector service from exploratory case study carried out to evaluate performance of the private sector participation in the state of Agege Local Government in Nigeria. Nevertheless, private operators were recommended to re-organize their accounting systems to ensure proper accountability of all money collected as charges for the services rendered and seeking assistance on how better they can address welfare staffs to ensure staff commitment. Additionally, effectiveness

disparity is evidenced by a meta-regression analysis by Bel et al, (2010) where he found no genuine empirical effect of cost savings resulting from private production. However, policy environment stimulating competition was recommended rather than the debate over public versus private delivery of these services. (Bolaane,2015) found public sector to contribute much on quality effects of private sectors example by ensure sufficient capacity to the general public on services contracted out and evaluation of performance criteria within the contracting. In contrast, apart from private sector's quality effects facilitated largely by public sector, (Niekerk,2019) stress general failure of privatization of solid waste management services in countries across Africa due to its failure to keep cities clean, provide an equitable service across poor and more wealthy residential areas, or provide decent jobs for solid waste management workers

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### **Research gap**

Effectiveness of outsourced solid waste management in developing countries is questionable. Outsourcing experience of the same in developing countries has led to a knowledge gap between what is theoretically known and what is actually happening in the field. This study was purposely made to bridge knowledge gap concerning the effectiveness of outsourced SWM. Analysis of Outsourced SWMS components have been used to prove whether the practice is really effective or not, success and failure stories have been shared, areas for improvement have been identified to facilitate sustainable environment supportive to social economic development of the city and country at large

## **METHODOLOGY**

### **Area of the Study**

This study was conducted at Dodoma, the study has taken four ward of Dodoma city council. The targeted study area enables the researcher to reach the target population easily and reduce the cost. Dodoma is administratively divided in to four (04) divisions, 41 wards and 170 mitaa/streets. This study did not take the whole of it. In this view, eight (08) wards only have been outsourced thus, four (04) wards were selected namely Majengo, Kilimani, Madukani and Makole wards. They have been selected because contains the targeted respondents and it is critical in generation of waste and have a lot of institutions and business communities.

### **Research Design**

A case study research design was applied by the researcher in this research. A case study design was used for this research as it allows intensive of the research area over other research outlines. It gives the premise to speculation for the unit under the study furthermore the contextual investigation explore

configuration is both time and cost productive. The fact that, the researcher would have the capacity to confirm data on the spot through observation and by becoming to be a part of the unit of study brings the more prominent probability of having accurate data.

### **Research Approach**

Mixed approach was used in this study, the mixed approach was used so as to get in-depth insights and descriptive statistical data of performance of Strategies of outsourced solid waste management in Dodoma city council.

### **Data Collection Method**

The study based on collecting both primary and secondary data. Documentary sources such as relevant books, official publications, and reports were utilized to present the fact and substantiate the arguments in order to secure secondary data. In representing the primary data; interviews and closed ended questionnaires were employed in this study.

### **Targeted Population**

The population participants of the study were; Dodoma city council’s officials, Institutions (markets, hospitals, and schools), Households, Business communities, Private agents’ management as well as Private agents’ staffs. Sampling strategies where by: Dodoma city council officer was 6 respondent, 9 respondent from private firms’ managers and staff,10 respondent from ward/street government, 20 was respondent from households and other 20 was business communities.

### **Sampling Technique**

The researcher adopts the case study type of research in which a sample from the target population was used for the study. Non-probability sampling, specifically the purposive sampling was adopted. In this method, targeted a group of respondents is believed to be reliable for the study. 65 respondents were selected purposely and from DCC population. Private firm’s leaders and staff ward executive officers (WEO), street chairperson, market leaders using purposive sampling technique, however, business communities and households was administered using a simple random sampling technique

### **Sample size**

<b>S/N</b>	<b>Category of respondents</b>	<b>No of respondents</b>
1	CD Officials	06
2	Private firm’s managers and staff	09
3	Institutions. i.e., ward and street governments, markets	10
4	Households and	20
4	Business communities	20
	<b>TOTAL</b>	<b>65</b>

### **Data analysis**

This study applies qualitative data analysis specifically content analysis to analyze verbal pieces of data to get an interpretation of their meanings. Qualitative analysis was employed to enhance sense making or

understanding a phenomenon rather than predicting or explaining it. Additionally, descriptive statistics was employed to analyze (quantitative) data obtained from the study using questionnaires.

**Ethical consideration**

The approval based on institute of accountancy laws. Whereby data collected will be used for academics matters and not otherwise. On the field, respondents have assured on the issue of confidentiality. The researcher abided with the guideline of Arusha institute of Accountancy on writing a proposal; also comply with the rules and obligation of copyrights as stipulated by Arusha institute of Accountancy bylaws under the new system of avoiding plagiarism in thesis writing. Not only that also Getting letter of approval for data collection by the institute

**FINDINGS AND DISCUSSION**

**Performance of solid waste management services in Dodoma City council currently**

In this aspect Participant who participates in this study were asked about performance of SWM in Dodoma currently, Data presented in table 1 below show that total number of 7 respondent equal to 10.8 % who participate in this study, they say performance of SWM Services in Dodoma is poor 24.6% of the respondent say they performance of SWM in Dodoma is Good, and 64.6% of respondent they also say performance of SWM services in Dodoma is very Good.

**Table 1 Performance of solid waste management services in Dodoma City council currently**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	poor	7	10.8	10.8	10.8
	Good	16	24.6	24.6	35.4
	Very Good	42	64.6	64.6	100.0
	Total	65	100.0	100.0	

Intention in this was to observe the performance of Solid waste Management currently in Dodoma city council, and analysis it shows that 64.6% of the respondent they have say Performance of solid waste management services in Dodoma City council currently in Very Good which means there is good performance in delivery these services to the community that means there is improvement of services since was introduced in 2018.

**Performance of solid waste management in Dodoma City council before application of outsourcing of SWM**

In this aspect Participant who participates in this study were asked about performance of SWM in Dodoma before application of outsourcing of SWM in 2018, Data presented in table 2 below show that total number of 8 respondent equal to 12.3 % who participate in this study they say performance of SWM Services in Dodoma was very poor,49.2% of the respondent say they performance of SWM in Dodoma before was poor, 20.0% of the respondent who participate

they says that performance was Good ,12.3% of respondent they say was very Good and 6.2% says was excellent before application of this outsourcing of SWM.

**Table 2 performance of solid waste management in Dodoma City council before application of outsourcing of SWM**

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Very Poor	8	12.3	12.3	12.3
	Poor	32	49.2	49.2	61.5
	Good	13	20.0	20.0	81.5
	Very Good	8	12.3	12.3	93.8
	Excellent	4	6.2	6.2	100.0
	Total	65	100.0	100.0	

Analysis in this part was done to observe the performance of SWM Before application of outsourcing SWM in 2018 by, this most respondent in this analysis they say before application of this outsourcing of SWM the Performance of Solid Waste Management was poor and Few they say was Good

**Changes of quality you have noticed in 3 years of using these services provided by the private sector**  
 In this respondent they were supposed to prove the view on quality of service they have noticed in 3 years since introducing outsourcing of SWM, And Analysis in this have found that most Respondent have observe good change in this service and the following are the changes they have noticed **improved quality of services.**

The aim was to compare and contrast performance of pre outsourcing and during the practice of outsourcing (from 2018 to date). From quantitative data it has been revealed that 90% of respondents support the outsourcing practice while only 10% criticizing it from negative side. However, from qualitative side, one of informants was quoted that;

*...Green waste company has brought a total transformation, wastes are picked up on time, and their means of transportation is safe compare to the time before, roads and streets are swept using modernized car brushes, green waste also is keeping public aware on how danger is to leave waste unmanaged effective...*

In a similar manner, independent observation by the researcher found collection points operated by green Waste Pro are always clean compare to those collection points that are under City government and CBOs operations example Majengo Market. Findings from all data collection method used are highly similar. Quantitatively 90% of population found to prefer outsourcing system over the old systems of solid waste management and are claim it to be of high quality in the whole cycle from collection to disposal. Researchers’ observations also found elements of quality because the statuses of collection points were found to be clear timely. However, Interview with key informants proved high quality transformation brought by outsourcing.

So generally, this brings in mind a great difference/ transformation in quality of SWM service between pre outsourcing period (2018 backward) and currently (2021 to date). Frequency of waste clearance to the collection and generation points in all outsourced wards have increased, in area where there is huge generation of solid waste like in Madukan ward and majengo per week they collect 2 days Monday and Friday in a week but in household street like kilimani they collect ones per week means of



transportation to the landfill has improved these findings are similar to Primy, (2014), Wilson et al, (2012), Ephraim, (2013) and Bartone, (2001) who found abundant quality brought by outsourcing program in SWM.



**Figure 1: One of the Primary collections at Madukani ward in Dodoma City**

### **Increased service coverage**

Currently, the tendency of burning solid waste has been reduced to many wards in DCC, wastes are picked up timely and with wide coverage even to poor planned streets like Chimule-Makole, Amani-Tambuka-Reli, Emage-Kilimani etc. small truck (canter) strives to collect effectively. However, in Kilimani tendency of making local Landfill and Burning of waste is still the problem. Thus, from qualitative data it has proved fall of respiratory diseases and regional diseases like cholera. Similar to study by Wilson et al, (2012) and Rosana, (2013) Outsourcing practice in solid waste management at Dodoma City council has led to an increase in service coverage contrary to what have been asserted by Van, (2019). This means that, private agent extends their operations even to areas where CBOs were not able to reach. However, attention of CBOs has increased to peripheral wards because Green Waste Pro has taken eight city center wards that were earlier served by CBOs.

### **Reduced Government burden**

Dodoma city council has outsourced solid waste management in eight wards out of forty-one (41) wards. There is no longer budget allocation in SWM to such eight (08) wards since 2018/2019 instead such amount is allocated to finance other services of public nature and service extension to other areas. Head of environmental department sported saying that, these findings found to be consistent with those attained from quantitative side where 57 out of 65 respondents which are equal to 87.6% agreed to the

notion that outsourcing has led changes of quality of services from the poor services to good services in solid waste management system in Dodoma city and that lead to reduction of government budget.

In this aspect the study was interested to measure the extent to which the system has managed to reduce government burden because it was one among the reasons for outsourcing practice globally and in solid waste management in particular. Similarly, with Coad, (2005) who confirmed an increased cost reduction caused by private sector engagement, findings of both questionnaire and interview indicate that to the highest extent majority accepts the fact that outsourcing of solid waste management has contributed much in reducing the government burden. Therefore, this implies that outsourced solid waste management in Dodoma city council has reduced government burden. These findings concomitant with (BPK-RI, 2010; ICLEI, 2009) that asserts realization of a great budget relief in LGAs from outsourcing practice.

### **Reduction of waste**

With outsourcing practice from 2018, volume of waste around streets and collection points has been reduced to the very high extent, in all eight wards outsourced to Green Waste Pro. Collections and transportation to the land fill are done timely, timetable indicates twice passing per week but in the points where generation is higher collection by private agents is on daily basis.

*...Compare to the time before outsourcing, masses of waste were common mostly to the primary collection points but currently the case it has turned to the history. Operation of transportation tracks to empty containers in the collection points was worse because contribution of fuel by CBOs had several delays...*

### **Affordability and satisfaction of the customers**

From the findings, it has been observed that, level of satisfaction differs from one street to another depending on their life statuses. While high income Households affords service fee and are satisfied with the constant service charge of 4000 per household per month situation is contrary to the poor income households living in a poorly designed street and those families with few members and few apartments. Likewise, to business communities, some are already been discouraged with current average amount of 10,000. This group apart from the fact that they might afford the cost, but they are not satisfied since does not consider levels of waste generation furniture shops claims to not producing waste but they pay the same level with other types of shops.

### **Recommendation**

Encourage outsourcing to the rest of Dodoma City Council Wards Since outsourcing arrangement is currently applied in only 08 wards out of 40+ Wards in Dodoma City, the remained wards have to be outsourced too. Outsourcing of the rest wards has to consider updated legislation. However, competitive environment is essential for realization of expected outcomes because whenever outsourced to a single agent it's likely to fail, From The finding of this study, I recommend more researches in the concept of outsourcing of solid waste management in LGAs be conducted especial in city council and other growing city considered wider cases and sample size.

### **Conclusion**

This study makes important contributions to the existing literature by assessing the effectiveness of outsourced solid waste management systems in city councils. More sensitive, in Policy arena the study proposes few solutions of which if they can be well implemented/ applied then outsourcing of solid waste management in Dodoma City Council may be more effective hence realization of the original/primary aim of involving the private sectors in the functions previously treated as public related issues.

Empirical evidences from various reviewed studies on outsourcing in solid waste management to include; (Mbulgwe,2013), (Idowu et al,2011), (Bel, et al2010), (Bolaane,2015), (Niekek,2019), (Khamis,2016) and (Primy,2014) show that, outsourcing in solid waste management offered mixed results toward effective management of the same; others are defending it while others are discouraging it. Despite this fact, the study findings have shown clearly that, actors involved in the framework are aware and implementing them responsibilities fairly, are also abided with their responsibilities and outsourcing legal frameworks as well.

On these grounds, it can be concluded that, to attain the primary goal of this strategy for outsourced solid waste management, actors have to strengthen system thinking during implementation of their responsibilities because effectiveness depends too the greater extent their connectedness and interdependence. Specifically, city council as a contracting authority has ensured efficient management during implementation, stable infrastructure, updated legislations, periodical monitoring and evaluation of projects, both needs to play their roles effectively including knowing and fulfill responsibilities, and separating politics from technical matters.

## REFERENCES

- Asnani, P.U. (2004). United States Asia Environmental Partnership Report, United States Agency for International Development, Centre for Environmental Planning and Technology, Ahmedabad
- Bel, et al, (2010). Is private production of public services cheaper than public production? A meta-regression analysis of solid waste and water services. *Journal of Policy Analysis and Management*, 29(3), 553-577.
- Coad, A. (2005). Private Sector Involvement in Solid Waste Management: avoiding problems and building on successes. *Dt. Ges. für Technische Zusammenarbeit*.
- Cunningham, W.P (2006) *Principle of Environmental science: inquiry and Application*, McGraw Hill.
- Ephraim, M (2013) conducted a study on Contribution of Public Private Partnership (PPP) towards sustainable municipal solid waste management
- Griffiths, D. (2001). The theory and practice of outsourcing. In *ANNUAL CONFERENCE-SOCIETY FOR TECHNICAL COMMUNICATION* (Vol. 48, pp. 306-310). UNKNOWN
- Idowu, O. B et al (2011). Outsourcing for sustainable waste disposal in lagos metropolis: Case study of Agege Local Government, Lagos. *Journal of sustainable Development*, 4(6), 116.
- Khamis, A. (2016). Effectiveness of solid waste management systems in local government authorities in Tanzania
- Kassim, et al. (2006). Solid waste collection by the private sector: Households' perspective— Findings from a study in Dar es Salaam city, Tanzania. *Habitat international*, 30(4), 769-780.
- Khamis, A. (2016). Effectiveness of solid waste management systems in local government authorities in Tanzania
- Oduro-Kwarteng, (2011). *Private Sector Involvement in Urban Solid Waste Collection: UNESCO-IHE PhD Thesis*. CRC Press
- Mbuligwe, S. E et al., (2003). Methodology and findings of a solid waste quantification and characterization study in dar es salaam city, Tanzania. *Journal of Solid Waste Technology and Management*, 29(3), 179-191
- Mrutu, L., & Mganga, P. (2016). Outsourcing or Giving All Out? Experience from Tanzania Local Government Revenue Collection. *Journal of Public Administration and Governance*, 6(3), 1-11.
- Oduro-Kwarteng, S. (2011). *Private Sector Involvement in Urban Solid Waste Collection: UNESCO-IHE PhD Thesis*. CRC Press
- Primy, D (2014) public private partnerships as a procurement mode in solid waste management: a case of Temeke municipality, dar es salaam region
- Palfreman, J. (2014). Waste management and recycling in Dares Salaam, Tanzania. Online <http://www.ResearchGate.net/publication/271441207>
- Walker, H. (2006). Outsourced Services and “Imbalanced” Supply Markets, 24(1), 95–105. <http://doi.org/10.1016/j.emj.2005.12.011>

- Wilson, D. et al (2012) “Role of Informal Sector Recycling In Waste Management in Developing Countries” *Habitat International* 30: pp 797–808.
- Wilson, D. C et al (2012). Comparative analysis of solid waste management in 20 cities. *Waste Management & Research*, 30(3), 237-254.
- Rosana, D. D. (2013). Privatization of Solid Waste Management Service: Practices in Developing Countries MSc Thesis
- Sandra van Niekerk and Vera Wegmann (2019). Municipal Solid Waste Management Services in Africa. *Ferney-Voltaire: PSI (PSIRU Working Paper)*. [www. world-psi.org/en/municipal-solid-waste-management-services Africa](http://www.world-psi.org/en/municipal-solid-waste-management-services Africa).

