

THE ROLES AND CHALLENGES OF THE PRIVATE SECTOR INVOLVEMENT IN SOLID WASTE MANAGEMENT WITHIN SEKONDI-TAKORADI METROPOLIS-GHANA

JOHN BENTIL

Abstract: The Private Waste Services providers were contracted to assist the Municipal, Metropolitan and District Assemblies in Ghana to effectively and efficiently manage the huge volumes of waste generate and to educate/sensitize the citizenry on proper waste management practices. This study upon assessing roles and challenges of the private sector involvement in municipal waste management found out that combination of factors (lack of personnel, logistics, poor attitude of the people, lack of enforcement of sanitation bye-laws) from the actors involved to ensure effective and efficient execution of their mandates has led to the unsustainable and appalling state of waste management within the Sekondi-Takoradi metropolis.

Keywords: waste, private sector, bye-laws, logistics, attitudes, funding.

1.0 Introduction

The management of solid waste continues to be a major challenge in urban areas throughout the world particularly in the rapidly growing cities of the developing world [1]. In Ghana, the provision of waste management services (WMS) is viewed as the responsibility of the central government; the legal and legislative framework guiding the provision of solid waste management (SWM) services originate from the central government. The ministry of Local government which has the supervisory role over the Metropolitan, Municipal and District Assemblies (MMDAs) provides the general policy framework for waste management. This involves identifying the stakeholders in the sector, defining their roles, establishing the modalities for awarding contracts and setting standards for the organization of waste management. This framework mandates the MMDAs to award contract for waste collection; detailing the level of service and charges, decide where to provide and who to receive what level of service; acquire equipment and final provide land for waste disposal [2].

Solid waste management is a capital undertaking and it financing calls for an all-embracing investment plans [3]. But in Ghana, revenue generated by assemblies, the State budgetary allocations and external donor support through bi-lateral and multilateral agreements are the sources of funding for urban waste management. It is evident that reliance of the assemblies on the inadequate budgetary allocations for waste management has crippled the ability of the Assemblies to provide the needed services. Ghana like most sub-Saharan African after attaining independence from the British in 1957 has relied mostly on

strategies modeled around Europeans for most of its developments through donor supports by signing bi-lateral and multilateral agreements. Continually relying on external donor supports undermine the sovereignty of the state, in addition to their European based policy frameworks that marginalize the life style of the people in favor of alien and modern systems [3]. The high cost involve in urban waste management with lack of sustainable funding sources in Ghana, coupled with the ever increasing urban population .has placed a huge burden on the assemblies to effectively and efficiently deal with the waste generated. For instance, it is estimated that throughout Ghana about 10% of solid waste generated is not properly disposed of [4]. It is also reported that in Accra, the capital city only 11% of the estimated 1.4million residents benefitted from home collection [5], the remaining 89% disposed of their waste at community dumps, in open spaces, water bodies, and in storm drains [6]. Available records also indicate that from the year 2002-2006 only an average of 40% of the solid waste generated in the then Shama Ahanta East Metropolitan Assembly was properly collected and disposed of [7]. The perpetual seen of solid waste in most parts of our urban centers is an indication that the local authorities are limited in capacity to effectively deal with the solid waste menace.

The observed changes in the provision of waste collection services in many cities in the developing world are the introduction of the private sector in the provision of such services. Afterwards, the management of solid waste is not seen as the local government monopoly but a sector opened to various forms of public-private partnership [3; 8]. The

private sector has been involved in the collection, transportation and disposal of solid waste within the Sekond-Takoradi Metropolitan Assembly (STMA) for some time till now, however, the cumulative deposition of solid waste in the metropolis; roadsides and drains clogged with filth can still be seen in most part of the city. The main motivator for this study is to investigate the roles and challenges of the private sectors' involvement in the metropolis' solid waste management.

2.0 The Research Methodology

2.1 Study Area

Sekondi-Takoradi Metropolitan Assembly (STMA) is the administrative capital of the Western Region of the Republic of Ghana and covers a land area of 219km² with Sekondi as the administrative headquarters. The Metropolis as shown in Figure 1 is bordered to the west by Ahanta West District, to the north by Mphor Wassa East District, to the east by Shama District and to the South by the Gulf of Guinea. The Metropolis is located on the south-western of Ghana, about 242km west of Accra, the capital city. It is also approximately 280 kilometres from the La Cote d'ivoire border in the west.

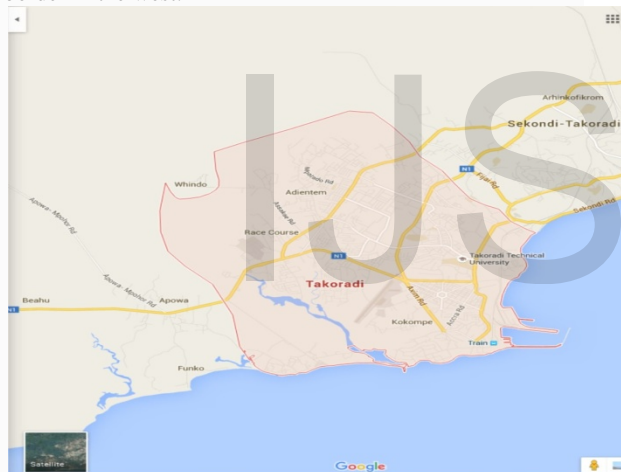


Figure 1; Shows the map of the study area (STMA)

For the purposes of governance, the metropolis is divided into four sub-metros; thus Sekondi, Takoradi, Essikado-Ketan and Effia-Kwesimintism sub-metros.

2.2 Data Collection

Data for the study were gathered through in-depth interviews and questionnaires administration from purposively selected respondents comprising the head and operations officer of Waste Management Department of STMA and the Head of operations of the private waste management providers in the Metropolis. Some selected community Assembly Members were interviewed to document their informed opinions on the activities of the private waste service providers (PWSPs). The collected data were processed using Microsoft Excel software.

3.0 Results and Discussion

The results and discussion of the study has been organized under the following broad subheading for the logical analysis and argument: Private waste service providers in STMA, the roles of the private waste service providers and the challenges they face in accomplishing their mandate.**3.1 Private Waste Service Providers (PWSPs) in STMA**

Table 3.1: Zones and PSWP

| Zone | PWSP |
|--------------------|---------------|
| Takoradi | Zoomlion |
| Effia-Kwesimintsin | Vemark Es |
| Sekondi | Stanley Owusu |
| Essikado-Ketan | Cudjo/Asadu |

Source: WMD STMA , 2016.

The involvement of the private sector in the collecting, transportation and disposal of solid waste in Sekond-Takoradi Metropolitan Assembly (STMA) begun in1996 under the Phase one of the World Bank sponsored Urban Environmental Sanitation Project (USEP1). The metropolis was divided into three (3) for the purposes of waste management under this project.Takoradi was categorized as zone one and was selected for the piloting of privatization. Currently as indicated in Table 1, the metropolis is zoned into four categories with each category been managed by their respective PWSP. The Takoradi sub-metro is been managed by Zoomlion Ltd, Vemark Es managing Effia-Kwesimintsin, and Sekondi and Esikado –Ketan also been managed by Stanley- Owusu and Cudjo/Asadu respectively. These contractors are supposed to manage the waste generated by the estimated population size within their catchment area.

3.2 The roles of the PWSP in STMA

According to officials of the four private service providers, the contract between them and the STMA specifies their roles as:

- Registration of the households within a company's zone of operation
- Sensitization of the residents on proper waste management
- Collection, transportation and final disposal

The study however observed that, currently, the private service providers are ONLY registering households within their zone of operation, collecting, transporting and disposing of waste collected with lesser attention given to the sensitization of the residents on proper waste management practices.

Table 3.2 Roles of the Private sector in practice

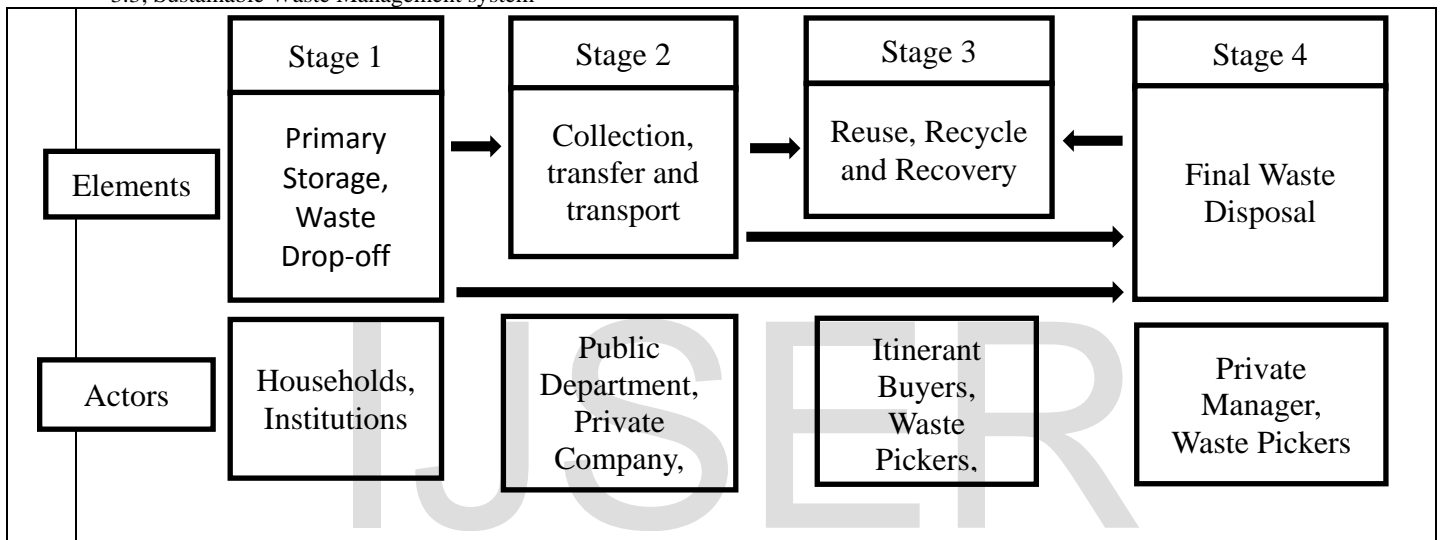
| ACTIVITY | PERCENTAGES | | | |
|----------------|-------------|-----------|-------------|---------------|
| | Zoomlion | Vemark-ES | Cudjo/Asadu | Stanley Owusu |
| Collection | 46 | 10 | 38 | 46 |
| Transportation | 24 | 16 | 38 | 18 |
| Disposal | 30 | 74 | 24 | 36 |

Table 3.2 indicates that Zoomlion has 46% collection rate, 24% transportation rate and 30% being disposal rate; Vemark Es 10% collection rate, 16% transportation rate and 74% disposal rate. Asadu has 38% collection rate, 38% and 24% transportation and disposal rates respectively whilst Stanley Owusu has 46% collection rate, 18% transportation and 36% disposal rates. These indicate that none of PWSPs in the metropolis is able to perform their core mandate of collecting, transporting and disposal of waste efficiently and effectively in the metropolis.

[7] reported that the contractual agreement between the Assembly and the private waste management companies makes provisions for sanctions that are to be applied

against the companies in case they do not perform satisfactorily. However, due to lack of logistics, the Assembly is incapacitated in effectively monitoring the activities to determine when things are not done properly. The author goes further to report that without adequate monitoring mechanisms in place, one cannot determine a premise that was not covered in the collection process, or a spillage that results from uncovered waste collection vehicles. This lapse in the monitoring of the PWSPs has given them a leeway perhaps to do what they won't with little regards to their contractual agreements. Sustainable waste management also requires that disposal of waste in landfills should be the last option to be considered in any waste management system.

3.3; Sustainable Waste Management system



Source; Author's own construct, 2016.

It is observed that all the PWSPs do not have any waste minimization practice such as waste reuse, recycle and recovery as shown in Table 3.3 as part of their schedule, which probably would have been part of their mandate to

sensitize the populace on proper waste management. Consequently the deposition and accumulation of waste in the metropolis continues on daily basis without any institutional arrangement to reuse or recycle.

3.3 Capacities of the PWSPs

Table 3.4 Staff Strength of the PWSPs

| NAME OF COMPANIES/PERSONNEL | ZOOMLION | | VERMARK | | ASADU | | STANLEY OWUSU | |
|-----------------------------|----------|---|---------|---|-------|---|---------------|---|
| | A | B | A | B | A | B | A | B |
| 1. General manager | 1 | 1 | - | - | 1 | 1 | - | - |
| 2. Operation manager | 1 | 1 | 1 | 2 | - | - | 1 | 1 |
| 3. Service Support Manager | 2 | - | - | - | - | - | 1 | 4 |

| | | | | | | | | |
|--------------------------------------|------------|----|-----------|----|-----------|---|----------|---|
| 4. Plant & Equipment Manager | 2 | - | - | - | - | - | - | - |
| 5. Finance and Admin. Manager | 1 | 1 | 1 | 1 | - | - | - | - |
| 6. Mechanical Engineers | 1 | 1 | - | - | 1 | - | | |
| 7. Sanitary Engineers | 2 | - | - | - | - | - | | |
| 8. Sanitary Officer | 1 | | - | - | - | - | | |
| 9. Mechanic | 8 | 8 | - | - | 1 | - | | |
| 10. Drivers | 15 | 15 | 6 | 6 | 2 | 4 | 1 | - |
| 11. Sweepers | 501 | - | - | - | 8 | - | | |
| 12. Labourers | - | - | 11 | 11 | 4 | 4 | 4 | - |
| OTHER PERSONNEL | | | | | | | | |
| 13. Business Development Officer | 1 | 1 | - | - | - | - | - | - |
| 14. Janitorial Officer | 1 | 1 | - | - | - | - | - | - |
| 15. Environmental Sanitation Officer | 1 | 1 | - | - | - | - | - | - |
| 16. Revenue Collectors | - | - | 6 | - | 1 | - | 2 | - |
| Total number of Personnel | 538 | | 31 | | 18 | | 9 | |

Source: Field, 2016

NOTE: Item **A** represents the number of personnel available and **B** represents the number of personnel required by the institution.

Analysis of the data in Table 3.4 shows that, there is inadequate staff capacity at managerial and operational levels. It was found out that, apart from Zoomlion which has some level of technical expertise at both managerial

and operational levels, all the other three institutions do not have enough technical expertise at both managerial and operational levels.

Table 3.5 Logistical capacities of the PWSPs

| Company | ZOOMLION | | | VERMARK | | | ASADU | | | STANLEY OWUSU | | |
|---------------------------|----------|------|------|---------|---|---|-------|---|---|---------------|---|---|
| | A | B | C | A | B | C | A | B | C | A | B | C |
| Compactor Truck | 5 | 4 | 5 | 3 | 3 | 4 | 1 | 1 | - | 2 | 2 | - |
| Skip Loader | 4 | 4 | 4 | 2 | 2 | 4 | 1 | 1 | - | 1 | - | - |
| Pick-Ups | 8 | 7 | 8 | - | - | - | - | - | - | - | - | - |
| Central Containers | 36 | 36 | - | - | - | - | 2 | 2 | - | 1 | 1 | - |
| Plastic/Metal receptacles | 2225 | 2225 | 3000 | - | - | - | - | - | - | - | - | - |
| Any Other Facility | | | | | | | | | | | | |

| | | | | | | | | | | | | |
|-----------------------|-------------|-------------|-------------|----------|----------|----------|----------|----------|----------|----------|----------|----------|
| Spraying Machines | 20 | 15 | 20 | - | - | - | - | - | - | - | - | - |
| Cabin (Mobile Toilet) | 12 | 4 | - | - | - | - | - | - | - | - | - | - |
| Kia Porter | - | - | - | - | - | - | 1 | 1 | - | - | - | - |
| Opel Caravan | - | - | - | - | - | - | - | - | - | 1 | 1 | - |
| Total | 2310 | 2296 | 3037 | 5 | 5 | 8 | 5 | 5 | - | 4 | 4 | - |

Source: Field, 2016

NOTE: Item A represents facilities available, B represents facilities in working condition and item C represents facilities required.

The Table 3.5 shows that all the PWSP are doing well in terms of the logistics needed for their operations, but the challenge may be due to the size of their operational areas and poor maintenance culture. It was observed that Zoomlion is managing a housing stock of 24,440, Vemark on the other hand is dealing with a housing stock of 59,701. Asadu was identified to be managing a housing

stock of 39, 873 whilst Stanley Owusu manages a housing stock of 19,176. The study also revealed that with the exception of Zoomlion, all the other PWSPs rely on private mechanical shops for the maintenance of their vehicles and trucks. All these may have accounted for the low levels of waste collection, transportation and disposal resulting in the accumulation of waste in most parts of the metropolis.

3.2. The challenges confronting the PWSPs in STMA

3.2.1 Low Household Registration

Table 3.6 Housing Stock against Registered Clients

| SUB-METRO | COMPANY | HOUSING STOCK | REGISTERED CLIENTS | PERCENTAGE (%) | DEFICIENCY (%) |
|--------------------|---------|-----------------|--------------------|----------------|----------------|
| Takoradi | ZL | 24,440 | 1,329 | 5.4 | -94.6 |
| Sekondi | JSO | 19, 176 | 869 | 4.5 | -95.5 |
| Essikado-Ketan | ARW | 39, 873 | 615 | 1.5 | -98.5 |
| Effia-Kwesimintsim | V-ES | 59, 701 | 3,568 | 6.0 | -94 |
| Total | | 143, 190 | 6,381 | 4.5 | -95.5 |

Source: Waste Department, STMA

The Sekondi-Takoradi Metropolitan Assembly has been sub-divided into four zones for the purposes of solid waste management. Table 3.6 indicate that only 5.4% of the population under the coverage of Zoomlion has registered with the service provider leaving 94.6% unregistered whilst Vemark has 6.0% registered leaving 94% of households unregistered. Asadu has 1.5% of the total housing stock registered leaving 98.5% unregistered whereas Stanley

Owusu has only 4.5% and 95.5% registered and unregistered households. In summary, only 6,381 households representing 4.5% out of the 143,190 houses within the metropolis [9] has registered with the various private waste service providers leaving 95.5% of households unregistered. It can be inferred from the Table 3.6 that a greater percentage of the population disposes of their waste in and at places of convenience.

3.2.2 LACK OF ENFORCEMENT OF ASSEMBLY BY-LAWS

Table 3.7 Household disposal methods

| METHOD | COMPANY | PERCENTAGES | | | |
|----------------------------------|---------|-------------|------|-----|----|
| | | ZL | V-ES | ARW | SO |
| Collected by service Provider | | 58 | 29 | 30 | 30 |
| Burnt | | 26 | 26 | 32 | 34 |
| Public dump (Communal container) | | 4 | 33 | 28 | 20 |
| Buried | | 12 | 12 | 10 | 16 |

Table 3.7 illustrates the preferred solid waste disposal methods in use within the various zones households. Section 14 of the STMA's bye-laws [10] on waste management clearly state that a person commits an offence when s/he does any of these among others:

- Fails to provide a standard container for waste storage as prescribed by the Assembly;
- Refuses to allow the Assembly or its authorized agents or contractors to collect solid or liquid wastes from one's premises;
- Fails or refuses to pay prescribed fees for waste management services;
 - Indiscriminately dumps, disposes and/or discharges solid or liquid waste in open spaces, drains, gutters, behind walls, burns solid waste in one's compound;
 - Recycles waste without prior approval of the Assembly.

Sections 15 of the bye-laws also prescribe penalties for any person who contravenes the above bye-laws. It states that:

Any person who contravenes any of the provisions of these bye-laws commits an offence and shall be liable on summary conviction to a fine of 100 penalty units (GH¢ 200.00) or a term of imprisonment not exceeding six months or to both, and in the case of a continuing offence a further fine of one penalty unit (GH¢ 2.00) shall be imposed after notice in writing of the offence has been served on the offender.

All these laws were enacted to serve as deterrents, but the above information (Tables 3.6 and 3.7) and the non-existence of records of defaulters indicate that these laws are not been enforced allowing the citizenry to do whatever pleases them.

3.3 Inadequate funds

Table 3.8: Service Charges by the PWSPs

| SERVICE CHARGES BY COMPANIES | | | | | |
|------------------------------|---|-----------------------|-----------------------|--------------------------------|--|
| Company | Door-to-door service (Household) (GHS/month/bin) | | | Communal service (GHS/lift) | Door-to-door service (Corporate) |
| | 3 rd class | 2 nd class | 1 st Class | | |
| ZoomLion | 15.00 | 20.00 | 30.00 | 60.00 | 60.00 |
| Vemark | 15.00 | 30.00 | - | 150-250 | 40.00 |
| Asadu | 20.00 | 25.00 | 30.00 | 200.00 | 40.00 |
| Stanley Owusu | 15.00 | - | - | 80.00 | 20.00 |

Source: Filed, 2016

The Table 3.8 shows the differences in the service and user charges for communal service contracts and the house to house service in the Sekondi-Takoradi Metropolis.

An official at Vemark indicated that: *“there are lots of factors affecting funding of waste collection activities in the STMA including; High default rates by the clients, unwillingness of individuals to pay the approved fees by the STMA to improve house-to-house service and for that, the company has to subsidize even the approved fees”*.

3.4 Inaccessible houses and poor road networks

The study found out that collecting of waste has been a big challenge due to the inaccessibility of some houses and poor road network in the metropolis. Poor roads network always breaks down and damage vehicles and in so doing refuse pile up at the transfer stations especially in the low-income areas. It can be recalled that an official at Zoomlion operations department said: *it is difficult to collect waste from areas such as Market circle, Presbyterian quarter, Amanful and others due to the size of the truck being used and the width of the roads in those areas.*

3.5 Perception and Attitude Finally, on the perceptions and attitudes of the population on waste management discussions were conducted with households, municipal waste managers and the private waste collectors. There upon, it was realized that a majority of the population still perceive that management of waste is and should be the responsibility of the local government and do not care what happens after disposing the waste.

The bad attitude towards waste management was also ascertained to be partly and/or wholly due to the following;

- Lack of appropriate waste management awareness by the population;
- Lack of systematic environmental education campaign in the metropolis to inform them on best waste management practices and attitudes;
- Poor level of knowledge on the waste minimization practices,
- Lack of enforcement of sanitation bye-laws and
- The non-involvement of the socio-cultural community in the waste management sector.

4.0 Conclusion

- The study found out that though the PWSPs are working within the Sekondi –Takoradi metropolis, combination of factors has led to the current appalling state of waste management. The study concluded that: The PWSPs apart from their mandate of collecting and disposal of waste, the education and awareness creation on proper waste minimization and handling practices as required by the contractual agreement is adhered to ,
- The solid waste management process is a complex task that requires adequate capacities (both personnel and logistics) from both the PWSPs and the Assembly, which they both lack.
- The Assembly does not see to the implementation of the bye-laws on sanitation that compel the citizens to register and pay for the services of the PWSPs. Also, the Assembly has been soft handed in effectively and efficiently monitoring the activities of these PWSPs.

Acknowledgement

The author wish to acknowledge Mr Jerry Acquah-Kenneth for his assistance in the collection of data during this research

References

- [1]. T.S. Foo, Recycling of domestic waste, Early experiences in Singapore. *Habitat Int.*, 1997, 21.277-239.
- [2].E. Owusu-Sekyere, E.Harris, E.Bonyah, Forecasting and Planning for Solid Waste Generation in the Kumasi Metropolitan Area of Ghana. An ARIMA Time Series Approach, *Int. J. of Sciences*, 2013, vol.2. Issue Apr.pp; 70-83.
- [3]. J.Fobil. O.Kolawole, J.Horgah, D.Carboo, F. Rodrigues. Waste management Financing in Ghana and Nigeria-How can the concept of Polluter-Pay-Principle (PPP) work in both countries, *Int. J.of Academic Research*,2010, vol.2.No.3,pp;139-142.
- [4]. A.Mensah & E.Larbi. Solid waste disposal in Ghana. Quality Assurance: Andrew Cotton, 2005. www.waste.trend.net.
- [5]. J.Songsore, Review of household environmental problems in Greater Accra, Ghana, 1992, Stockholm Environmental Institute (SEI), Sweden.
- [6]. R.Asomani-Boateng & M. Haight . Reusing organic solid waste in urban farming in African cities: A challenge for urban planners. 2004. www.idrc.ca/publication/online books.
- [7]. S. Mariwah, Institutional arrangements for managing solid waste in the Shama-Ahanta-East Metropolis, Ghana, *Journal of Sustainable Development in Africa*, 2012, vol.14 no.6.
- [8]. J.Post & N. Obirih-Opareh, Partnerships and the public interest: Assessing the performance of public-private collaboration in solid waste collection in Accra. *Space and Polity*, 2003. Volume 7, No. 1: 45-63.
- [9] Ghana Statistical Service, 2012 Ghana Population Census.
- [10]. Government of Ghana, Local Government Act (Act 462). Ministry of Local Government and Rural Development. (1992)

Author; John Bentil

Senior Lecturer Civil Engineering Department

Takoradi Polytechnic, p.o.box 256, Takoradi

Email: John.Bentil@tpoly.edu.gh/jbentil@ymail.com

Contact: +233 (0)209365404/545059697