

Capacity Issues of Private Sector Participation in Urban Solid Waste Management in Nigeria

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Abstract: The problem of solid waste remains a single environmental problem common to the urban centres in Nigeria. This study shows an attempt to overcome this problem in Minna, Nigeria by introducing private-public partnership. While the action is commendable, it is discovered that the private firms also experience weak capacity. In addition, the firms operate mainly in high/middle income residential neighbourhoods. Thus, even where they make impacts in managing solid waste, such impacts are restricted. Although, people are ready to continue to patronize the waste firms, the paper believes that the capacity of the firms must be strengthened while their operation should cover all parts of the city.

Key words: Solid waste • Capacity • Capacity building • Private waste collector • Assessment

INTRODUCTION

The management of solid waste, perhaps, stands as the most visible environmental problem facing the Nigerian cities. The problem is growing daily as a result of increasing urbanization. The solid waste problem is visible in most parts of the cities; on the roads, within the neighbourhoods and around residential buildings. Essentially, it is observed that existing capacity for addressing the problem is low at all levels of government, particularly at the city level; since solid waste is the responsibility of the local governments. The solid waste problem in Nigerian urban centres is such that the United Kingdom Department of International Development through its State and Local Government Programme (SLGP) supported the Nigerian government in reforms on solid waste management [1].

Capacity building is becoming prominent within local authorities in most parts of the world [2]. The current thinking is that poor waste management reflects largely the failure of the existing institutions to adequately address the waste problem [3,4]. In Nigeria, reforms that tend to strengthen the macro structure of the local governments have not addressed the capacity to deliver services and to retain such service delivery capacity. Egunjobi [5] underscored this fact when he remarks that 'all evidences appear to point to the fact that city authorities have proved incapable of providing an enabling environment for the fast growing population to make a living and to maintain a desirable quality of life'.

It is against this background that any initiative to build capacity by urban institution becomes attractive. A few cities such as Lagos, Kaduna, Maiduguri, Ilorin and Ibadan, among others have been engaging the services of small scale private sector organizations in managing the their solid waste. African Development Bank [6] reports private sector participation in solid waste management Cairo, Accra and Nairobi. All these are local efforts to increase capacity for solid waste management.

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In Minna, attempts to engage the services of the private sector started in 2001 and since then, the sector has been making efforts to boost the city's capacity for solid waste management. The solid waste management problem is attaining a worrisome dimension with increased urbanization of the town. The population of Minna rose from 59 989 in 1963 to 76 480 in 1979, to 190 750 in 1991 and to 440 251 in 2002 [7]. Minna is the capital of Niger State and has grown from a compact settlement clustered around the railway station to surrounding settlements as far as 10 to 15 km from the centre of the town. Both the spatial extent and the population growth have implications for solid waste generation and management.

The problem of solid waste in Minna has been shown in earlier studies [7,8]. It was shown that 82 percent of the households in Minna poorly dispose their solid waste by disposal by wheel barrow, burning and direct disposal by households on to places they consider convenient. Hence, solid waste in Minna finds its way into city drains and neighbourhood streets. It was also shown that 80 percent of the streets have unkempt refuse dumps. Solid waste problem does not only exist among the households; but also within the general environment of the neighbourhoods. The problem is also not confined to any type of neighbourhoods; both the low income and high income neighbourhoods of Minna experience solid waste management problem. This translates to poor housing conditions at the level of the households and poor environmental quality at the level of the neighbourhoods. The solid waste conditions of the neighbourhoods are serious enough since neighbourhoods are seen as the frontline in the battle for sustainability [9]. It is not an exaggeration to say that Minna is experiencing poor environmental quality arising from poor solid waste management.

While the participation of private firms in solid waste management is seen as a way of injecting dynamism and efficiency into solid waste service delivery system [4], it is also true to say that weak capacity on the part of the private sector may undermine this expectation. Thus as much as the emerging partnership that private sector participation in solid waste management entails is commendable, it is also important to be weary of possible capacity inadequacy of the private sector firms. It is the objectives of this study to examine the status of solid waste problem, to examine trends in the capacity of the private waste collectors between 2001 and 2008, to examine their role in managing solid waste and to assess the capacity of the firms in managing solid waste in Minna. The objectives also include examining the feelings of the beneficiaries (households) on the performance of the organized solid waste collectors and to propose measures to further strengthen the capacity for solid waste management.

Understanding Capacity: Capacity building came to the fore in development paradigm in the 1990s. It is a component of good governance which in itself is a fall-out from sustainable development concept. Sustainable development became entrenched in development literature with the publication of the book, *Our Common Future* in 1987. As a new way of solving old and apparently intractable problems, sustainable development became a yard stick for measuring responsiveness of development actions to human welfare and to the quality of the environment. Given the enormous changes envisaged by the concept in managing human affairs and settlements, it became imperative to focus on multiple sources of changes and reformation of the governing institutions and attitudes to fulfil the goals of sustainable development. This makes the thinking of relieving governments to deliver services and brings about the concept of good governance. Good governance refers to a set of rules which is based on the values of the people, approved by the people and allowed to operate freely in the society [10]. It is characterized by participation, accountability, transparency, equity, decentralization and capacity building. Capacity building stands at the centre of good governance. It is common to all components of good governance. In service delivery process, capacity building is one of the three legs for its success (Figure 1). The goal of capacity building, governance and sustainable development is responsive service delivery that enhances quality of people and the environment. The three interact to produce the goal as seen in Figure 1.

Capacity building has many dimensions and as such has attracted many definitions; each definition attempts to emphasize the various dimensions. In defining capacity building, it is appropriate to understand, the word, capacity.

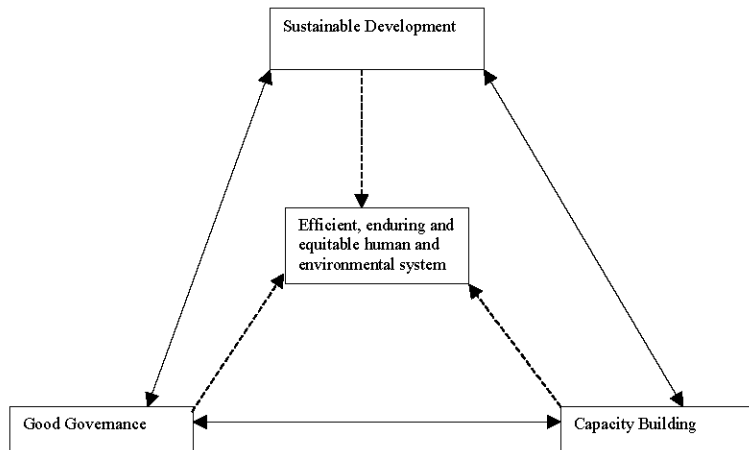


Fig. 1: a Triangular System of Sustainable Development, Good Governance and Capacity Building

Capacity is referred to as ‘ability, individually and collectively, to perform functions, solve problems and achieve objectives’ [11]. It means the resources available to individuals, groups and institutions to perform duties statutorily and socially assigned to them. For example, the functions of arbitration is assigned to law courts by enabling law while the power of arbitration to a community leader is socially assigned; for the society looks towards him for the resolution of such conflicts. According to Watson [12], it is ‘that emergent combination of attributes, assets, capabilities and relationships that enables a human system to perform, survive and self-renew’. Capacity also connotes ability to also perform such functions effectively, efficiently and sustainably [13]. Hence, it is easy to see capacity building as the means of beefing up the ability of individuals, groups and organizations to render services. It is ‘the building up and strengthening of capacity, retaining of existing capacity and retrieving capacity which has been eroded or destroyed’ [13]. It involves continuous development and objective use of human resources, constructive management of organizations, institutional context, political and social condition which support and sustain capacity [13,14]. It deals with the enhancement of ability to deliver development results.

Capacity building is both a means and a product. As a means, the focus is on improving the links between the structure, processes and activities of the organization that is being strengthened and the quality and quantity of its output and outcomes while as a product or end it means ‘strengthening the quality of representation and decision making within the society and its organizations and the involvement of the people in socio-political processes [15]. Capacity building occurs when people and groups interact together in the right way and hence, it is a product of group dynamics tailored and focused on mission-derived tasks [16]. Capacity building is a process of change; a change from old ineffective ways of doing things to innovative way of thinking, actions and reformed people and institutions. The output of this change is essentially, an improvement of processes of decision making [13]. Capacity building is also a network of relationships and interactions, a network of support, learning and innovations. It is applicable to all sectors, all spaces and all persons and groups. This makes capacity building relevant to managing urban environment in general and solid waste in particular. At the level of cities, capacity building relates to all efforts at improving the functioning of the machinery for governing the city, both formal and informal, within and without and at improving the quality of people and environment. Capacity building for an urban agency translates into area-wide capacity building that touches all segments of the city. Capacity needs to be weighed and understood at all times to aid capacity building. This relates to capacity assessment. Capacity assessment is concerned with identifying existing capacity and what additional capacity is required [17]. It involves providing an overview and analysis of the capacity weakness of all stakeholders (Republic of Malawi). According to Capacity Development Group [18] capacity assessment is an integral part of capacity building. Capacity assessment reveals capacity deficiency and by that spurs organizations to address the observed weakness.

Table 1: Content of Capacity Leads

S/N	Item	Content
1	Strategic leads	Mission goals, tasks and activities.
2	Cultural leads	Attitudes, values and group relations
3	Structural leads	Division of competencies and authority
4	Systems leads	Procedures, sequences of work, communication/information flows.
5	Resources leads	Mix and level of financial and other resources.
6	Plan and budget leads	Ways resources are allocated and accounted for.
7	People lead	Human resources: knowledge and skills.
8	Technology leads	Principle assumptions, hardware and software used in the core work.
9	Relationships leads	Pattern and content of external relations.
10	Performance leads	Quality of outcomes.

Source: After Fowler, A.; 1997.

Methodoly: The study relies largely on primary data. Primary data consists of data sourced from private waste collectors (PWCs) and household based survey. The first is meant to understand the activities and capacity of the PWCs. Questionnaire administration to them cover when operation started, facilities and personnel for waste management, areas of the city covered, networking, engagement conditions, charges, frequency of collection and problems faced. Data on PWCs cover were collected over three years; 2001, 2005 and 2008. This gives an opportunity to observe changes over time in the capacity of the firms. A major constraint in this case is that the firms do not keep permanent address; they also have easy exit. Hence, the three surveys do not cover the same firms. Household-based primary data is meant to assess the performance of the PWCs by the households. The second household survey consists of questionnaire administration to 130 households from five neighbourhoods where organised waste collection is practised. Data analysis was done by means of trend analysis where changes in capacity variables are examined over the years and assessment of capacity leads. The leads consist of ten items. As a change process, capacity building involves recognizable strategic leads. The leads are not only tools of change; they also provide measures of assessing capacity building. These, leads as, provided by Fowler [16] are 10 as shown in Table 1. Each lead contains features which may result in institutional or individual improvement. For example, strategic leads consist of missions, goals, tasks and activities, cultural leads consist of attitudes, values and group relations while performance leads consist of quality of outcomes.

Data Analysis: In this section, the role and capacity of the private sector firms in managing solid waste are examined.

Private Participation in Solid Waste Collection: Against the backdrop of the poor state of solid waste management among the neighbourhoods in Minna, the introduction of private sector firms in solid waste management can be appreciated. In this section, the waste firms, their capacity and operation are examined. Capacity variables considered are equipment, personnel and networking while operation is examined by looking at frequency of waste disposal, charges, satisfaction with the solid waste management activity and basic problems facing the firms.

The Private firms: The private waste collectors is a new phenomenon in the waste management system in Minna. It was introduced by the Niger State Urban Development Board (NUDB) in 2001 as a way of improving its capacity for solid waste management in the city. At the inception of the programme in 2001, five private waste collectors were registered. The number increased to six in 2005 and 18 in 2008. In 2001 survey, four out of the five PWCs are covered, two in 2005 and six in 2008. The two firms covered in 2005 were the ones that could be identified with their registered addresses. In this section, detailed discussion on the firms over the years are undertaken. The capacity of these firms for managing

Table 2: Capacity Status of Private Waste Collectors, 2001

Capacity type	Hasmol	Micro-clean	Town Cleaner	Rola Holdings
Equipment				
Pick-up van	1	1		1
Volkswagen Saloon	1			
Toyota litace	-		1	
Toyota corolla (saloon)	-		1	
motorcycle	-		1	
Personnel				
Labourer	2	2	-	3
Driver	1	1	-	1
Cashier	1	-	-	-
Manager	-	1	-	2
Director	-	-	-	1
Networking				
Networking with other firms	None	None	Yes	Yes
With Local government (LG)	None	Cordial	None	None
Assistance from LG	None	None	None	None
Mode of registration	Annual	Permanent	Annual	Permanent
Landfill site	Maitumbi Bye-pass		Western Bye-pass	Western by e-pass
Assistance from NUDB	Publicity, advice		Publicity	
Frequency of disposal				
High density neighbourhoods	3 times/week	3 times/week	Once/week	2 times/week
Medium density neighbourhoods	2 times/week	3 times/week	Once/week	3 times/week
Low density neighbourhoods	2 times/week	3 times/week	Once/week	3 times/week
Charges (in Naira)				
High density neighbourhoods	300	500	150	
Medium density neighbourhoods	250	500	150	
Low density neighbourhoods	100	500	150	
Satisfaction with response	Very satisfactory	Satisfactory	Satisfactory	Satisfactory
Basic problems				
Unfair competition from NUDB				
Non-cooperation of residents	v		v	v
Poor accessibility to buildings				
Poor location of landfill		v		

Source: author's Field Survey, 2001.

the city's solid waste are assessed by looking at (1) the equipment at their disposal; (2) personnel; and (3) Networking. Their activities are examined by looking at their operation in terms of charges, frequency of waste disposal and the satisfaction they derive from the job.

Private Waste Collectors and Waste Management Capacity and Operation, 2001: Out of the five registered PWCs, four were covered in the 2001 survey on the activities of the waste collectors. These four are Hasmol, Micro-clean, Town Cleaner and Rola Holdings. Summary of the indicators of capacity and operation of the firms are shown in Table 2.

In term of equipment, Hasmol had one each of pick-up van and Volkswagen saloon car. Both Micro-clean and Rola Holdings have only one pickup van each while Town Cleaner has one each of Toyota Hiace bus, Toyota Corolla and Motorcycle. These are the vehicles available for the disposal of the solid waste. In term of personnel, both Hasmol and Micro-clean has one labourer each; Rola Holdings had three while town Cleaners had four. All except Town Cleaner had a driver each while Micro-clean and Rola Holdings had one and two managers respectively. In addition, Rola Holdings had a director. In term of equipment, none of the firms could be said to be well equipped to do the job of solid waste disposal.

in Minna as at 2001. Even, the labourers were few. In term of networking; it is found out that only two firms (Town Cleaner and Rola Holdings) claimed to maintain relationship with other waste collectors; three had no relationship with the local governments covering Minna while for Micro-clean, the relationship is cordial. Similarly, none of them had got any assistance from the local government authorities. For two of the firms, registration is annual while for two others, registration is permanent. Assistance from the NUDB is similar for the three firms which claimed to get assistance from the agency. The assistance is in form of encouragement to start the job and publicity while in one case, the NUDB has been responsible for resolving conflicts among the firms. No any concrete means of capacity building is traced by the firms to either the local government authority or the NUDB. No attempts at capacity building in term of training, placing order for equipment and deliberate efforts at networking with local and external waste management agencies were claimed by the firms. The environment for the operation of the private sector firms is provided by the NUDB. The NUDB engages the services of the firms as a way of complementing its own management capacity; it registers the firms, sets conditions for their operations and supervises the firms. It also ensures that areas designated for formal waste disposal system actually comply and prosecutes offenders of sanitation laws. Such prosecution helps in forcing the residents to patronize the private sector firms.

Table 2 also shows the frequency of waste disposal by the firms. The Table shows that Micro Clean disposes the waste three times per week in all the residential areas covered; Hasmol does this twice per week; Town Cleaner, once per week while Rola Holdings disposes waste twice per week in the high density residential areas and three times per week in low density residential areas. The frequency of disposal is observable in the service charges; while it was N150.00 per house per month by Town Cleaner, it was N500.00 per house per month in all residential types by Micro-clean. For the Hasmol, it was N300 per house in high density area, N 250 in the medium density area and N 100.00 per house per moth in the low density area. Although the service charge by Hasmol seems to favour the rich, the truth is that higher number of households in the high density area means higher waste generation on one hand and lower charge per household on the other. For the solid waste collectors; satisfaction level is fairly uniform. Except for Hasmol, the other three firms claimed satisfactory job experience while Hasmol claimed very unsatisfactory experience. To three of the firms, non-cooperation of the residents is a major problem while to Micro-clean, poor location of the sanitary landfill is a major problem.

Private Waste Collectors and Waste Management Capacity and Operation, 2005: A return survey was conducted in 2005 to assess the capacity of the solid waste firms. The results are shown in Table 3. By 2005, only one (Micro-clean) of the initial five firms was still in operation. A new one, Alif maintenance, however joined it. In term of equipment, Micro-clean has only one pick-up van. On the other hand, Alif maintenance has three transfer vehicles, four motorcycles and two official cars. In term of personnel, Micro-clean has one driver and one manager while Alif Maintenance has five drivers. Similarly, while Micro-clean has two labourers, Alif Maintenance has 28 labourers. In term of networking, there is no improvement over what was observed in 2001. While Micro-clean did not maintain any linkage with other waste collecting firms, Alif Maintenance did. The role of the local government authorities have remained passive while the NUDB has kept to maintenance of land fills, issuing and enforcement of guidelines and resolution of conflicts among the firms.

In term of operation, Micro-clean disposes the waste from its areas in all residential density areas every 10 days. On the other hand, Alif Maintenance keeps variable frequency of disposal; twice per week for the high density residential areas, once per week for the medium density areas and every ten days for the low density areas. Service charges by the firms also vary. Micro-clean charged N300.00 per house for the high density areas, N500.00 per house for the medium density areas and N1 000.00 per house for the low density areas. The corresponding charges by Alif maintenance are N500.00 (high density), N700.00 (medium density) and N1 200.00 (low density). To the two firms, the response by the customers to payment of charges is satisfactory. However, non-cooperation for large scale patronage has remained a problem to Micro-clean while non-cooperation of the people, poor accessibility to residential buildings and poor location of the landfill are major problems confronting the activities of Alif Maintenance.

Table 3: Capacity Status of Private Waste Collectors, 2005

Capacity type	Micro-clean	Alif maintenance
Equipment		
Pick-up van	1	-
Transfer vehicle	-	3
Motorcycle	-	4
Official vehicle	-	2
Personnel		
Labourer	2	28
Driver	1	5
Manager	1	-
Networking		
Networking with other firms	None	Yes
With Local government (LG)	Cordial	Cooperation
Assistance from LG	Advice	Mediatory role
Mode of registration	Annual	Permanent
Landfill site	Bida Road	Bida Road
Assistance from NUDB	Maintenance of landfill	Issuing and enforcement of guidelines, and mediation between parties
Frequency of disposal		
High density neighbourhoods	Every ten days	2 times/week
Medium density neighbourhoods	Every ten days	once/week
Low density neighbourhoods	Every ten days	every ten days
Charges (in Naira)		
High density neighbourhoods	300	500
Medium density neighbourhoods	500	700
Low density neighbourhoods	1000	1 200.00
Satisfaction with response	Satisfactory	Satisfactory
Basic problems		
Unfair competition from NUDB		
Non-cooperation of residents	√	√
Poor accessibility to buildings		√
Poor location of landfill		√

Source: Author's Field Survey, 2005.

Private Waste Collectors and Waste Management Capacity and Operation, 2008: The 2008 survey covered six out of the 18 firms registered by the NUDB. By 2008, only one of the firms covered in the previous survey, Alif maintenance, could be covered. Locating the firms by the addresses kept with the NUDB is a major field problem. The other five firms are Environ-Best, Aglow Globa, Tsabta Ventures, CAQSA Clean and De Collectors. Details of the capacity situations of the sampled firms are shown in Table 4. Capacity situation of the firms does not differ significantly from the ones observed in the previous survey. In term of equipment, only Tsabta has more than three vehicles for waste collection. It has three pick up vans and three tipper Lorries. Three others, Environ Best, Aglow Globa and Alif Maintenance have three each. On the other hand, CAQSA depends on renting vehicles for its job. Similarly, labour input does not fare better. While Environ Best has five labourers, Aglow Globa has 13 while Alif has 40. Alif also has 10 drivers. On the other hand, Tsabta Ventures, CAQSA and De Collectors have no labourers. The junior and middle level management officers are part of the workforce for labourers' job. All the firms however have management officers. A generally low level of networking is observed among the firms. No active networking activity is observed by them even, among themselves, there is no

Table 4: Capacity Status of Private Waste Collectors, 2008.

Capacity type	Environ-Best	Aglow Globa	Tsabta Ventures	CASQA Clean	De Collectors	Alif Maintenance
Equipment						
Pick-up van	3	1	3	None;	2	
Tipper		2	3	Borrows		3
Saloon car				vehicles		
Toyota Bus						3
motorcycle						
Personnel						
Labourer	5	13				40
Driver			6		10	10
Cashier/junior management	12		5		3	
Middle level	6	9	2	5	5	5
Manager	1		1	1	1	1
Director		2	5			4
Networking						
Networking with other firms	None	None	None	None	Cordial	Mutual
With Local government (LG)	None	None	None	None	None	None
Assistance from LG	None	None	None	None	None	Partners
Mode of registration	Annual	Annual	Permanent	Permanent	Permanent	Annual
Landfill site	Gidan Kwano	Gidan Kwano	Gidan Kwano	Gidan Kwano	Gidan Kwano	Gidan Kwano
Assistance from NUDB	Road Dump site	Road Dump site	Road Dump site	Road Dump site	Road Dump site	Road Dump site
	Regulatory	Regulatory	Regulatory	Regulatory	Regulatory	Regulatory
Frequency of disposal						
High density neighbourhoods	3 times/week	3 times/week	Once/week	Every ten days	2 times/week	2 times/week
Medium density neighbourhoods	3 times/week	3 times/week	Once/week	Every ten days	3 times/week	Once/week
Low density neighbourhoods	2 times/week	3 times/week	Once/week	Every ten day	2 times/week	Every ten days
Charges (in Naira)						
High density neighbourhoods	2 000	200 flat	500	500	750	Charges
Medium density neighbourhoods	1 500		700	500	750	according to waste
Low density neighbourhoods	700		1 000	500	750	generation rate
Satisfaction with response	Very satisfied	Fairly satisfied	Satisfied	Satisfied	Fairly satisfied	Fairly satisfied
Basic problems						
Unfair competition from State waste agency						
Non-cooperation of residents	√	√	√	√	√	
Poor accessibility to buildings						
Poor location of landfill						
Lack enforcement of sanitation						
Rules						√

Source: Author's field survey, 2008

networking to ensure effective running of their activities. The state waste management agency (NUDB) is only known for its regulatory function. There is no active ways in which the Board assist the firms for better performance. Similarly, the local government authorities (Chanchaga and Bosso) are found dormant in this respect. More disturbing is the fact that there is no sanitary landfill for waste collected by the firms. They all dump the waste at an open dump and burn same when they like.

The operation of the firms is not seriously different from the previous ones. Frequency of disposal varies from once per week to once every ten days. Alif Maintenance maintains its 2005 frequency of twice per week for high density areas, once per week for medium density areas and every ten days for low density areas. Three firms, Aglow Globa, CAQSA Clean and De Collectors maintain a uniform rate of N500 and N750 respectively per month while others vary their charges among the different residential densities. However, for Alif Maintenance, charges are determined by observed waste

Table 5: Assessment of the Capacity of the Private Firms by Strategic Leads

S/N	Item	Content	Performance score (x/5)
1	Strategic leads	Fair goals and activities.	3.0
2	Cultural leads	Little influence on attitudes; however, the need for other stakeholders to participate in waste management is already established.	1.5
3	Structural leads	Division of competencies and authority is not clearly defined.	1.0
4	Systems leads	Nil.	0.0
5	Resources leads	Marginal resource commitment as evidenced from low equipment capacity.	1.0
6	Plan and budget leads	No access to information on this.	-
7	People lead	Not observed	0.0
8	Technology leads	Not observed	0.0
9	Relationships leads	Nil	0.0
10	Performance leads	Not particularly of high quality.	1.5

generation and not predetermined by density type. The problem of non-cooperative attitude of the households is common to all the firms except Alif maintenance. Non-cooperation is demonstrated by low patronage and poor payment of charges. According to Alif maintenance, non enforcement of sanitation rules is a major operating problem. This might account for the non-cooperative attitude of the households. Satisfaction is becoming affected with the problems being faced by the PWCs. For example, while in 2005, the two firms in the survey felt satisfied with their job, by 2008, while one feel very satisfied, three others feel fairly satisfied.

From the foregoing the capacity issues in waste disposal by the PWCs can be summarised as inadequate equipment, few appropriate workers, absence of sanitarily justified disposal site, low networking, absence of clear cut capacity building efforts by the state waste management agency, non-cooperative attitude of the households and the local governments and lack of enforcement of sanitation rules. Over the years, the firms have remained the same in characteristics, capacity and operation. It is clear that they are small firms attempting to partner with the state agency for waste management. While the small size is observed, the capacity problem should also be recognised.

Assessment of Capacity and Operation: Given the fact that the private waste collectors started operation in 2001, it is believed that within the last seven to eight years their impact on waste problem should be noticeable. In attempting to understand their role, an assessment of their capacity and activities is important. It is noted that their entry into waste management system is a capacity building process; the emerging partnership is not only meant to offer succour for the NUDB (now Niger State Environmental Protection Authority, NISEPA) responsible for waste management, it is expected that they would muster enough resources and technical capability to address the problem of waste management in Minna. From the point of view of capacity, it is visible from the resources available to the operators that they also suffer from capacity weakness. Two ways are adopted to assess the capacity of private sector waste collectors in Minna. The first is based on the application of strategic leads while the second deals with the assessment by the people.

Assessment by Strategic Leads: To approach the assessment on fairly objective basis, the capacity of the operators is assessed based on the strategic leads which capacity building should offer. Table 5 shows the application of the strategic leads in making this assessment. In column 1, the leads are listed, in column 2, the capacity of the firms are assessed in descriptive term with respect to each lead while in column 3, a scoring of the status of each capacity lead is done. The scoring is to attach some value to the observed level of changes brought about in the management of the solid waste in Minna within the last eight years.

As shown in the Table, the goals and activities of the firm are noted to be fair enough, although little influence is experienced on the attitude of the populace towards waste management. However, the presence of the waste collectors affirms the need for other stakeholders to be introduced into waste management. Furthermore, in term of structure, division of competencies and authorities is not defined while highly marginal resources have been committed so far by the firms.

Table 6: Household Patronage and Assessment of Private Waste Collectors

Variable	Definition	Frequency	Percentage
When The Patronage Of Waste Collectors Started	Period in Years	Frequency	Percentage
	-----	-----	-----
	1	44	34
	2	34	26
	2	35	27
	4	17	13
	-----	-----	-----
	Total	130	100.0
Household Assessment Of The Performance Of Waste Collectors	Assessment	Frequency	Percentage
	-----	-----	-----
	Very satisfactory	25	19
	Satisfactory	53	41
	Very unsatisfactory	34	26
	Unsatisfactory	6	5
	Cannot say	12	9
	-----	-----	-----
	Total		
Households Want Of The Waste Collectors		Frequency	Percentage
	-----	-----	-----
	Yes	103	79
	No	27	21
	-----	-----	-----
	Total	130	100
Problems Associated With Collection Of Waste By The Private Firms	Problems	Frequency	Percentage
	-----	-----	-----
	Irregular collection	47	36
	High charges	13	10
	Irregular collection and high charges	10	8
	None	60	46
	-----	-----	-----
	Total	130	100.0

Source: Author's Field Survey, 2008

Leads such as people-led changes, technology and relationships are not observed at all. In general, the performance of the firms is not of high quality. The scoring shows that the highest score is obtained in relation to strategic leads which deal with goals of the engagement of the firms. In this lead, there is a core of 3 out of the maximum 5 marks. While 1.5 each is scored in term of cultural and performance leads 0.00 each is recorded in terms of people-led, technology and relationship leads. In all, the assessment leads shows a score of 8.0 out of 50. That is, a 16 percent performance level. This is very low. The low capacity of the firm points to the fact that the operators actually lack initial and even sustained resources, technical capability and even the business relationship to properly conduct the exercise of waste management. It could have been seen as a way of making a living by the operators rather than a serious commitment to solving the waste problem.

Assessment by the People: The observed weak capacity of the waste collectors is coming against the background of the patronage of their services by the populace. Responses of the households on their patronage and assessment of the private solid waste collection firms are shown in Table 6. As shown in the Table, 44 of the households started using the firms in 2001. So, between 2001 and 2005, additional 86 households (66%) joined in the use of the waste collectors. Table 6 also shows that 60 percent of the households feel satisfied with the performance of the waste collectors as opposed to 31 percent who do not feel satisfied. Similarly, Table 6 shows that 79 percent of the households would want the continuation of the operation of the waste collectors as opposed to 21 percent who feel otherwise. Furthermore, 36 percent

of the households feel that irregular collection of waste is a major problem, 10 percent feel that high charges is a major problem while seven percent feel that both irregular collection of waste and high charges constitute major problems in the operation of the waste collectors.

From the foregoing, the following capacity issues can be identified.

- The structure of management of the firms is simple. Although this conforms with the small unit size, it may undermine service delivery.
- The physical assets in terms of equipment are few. This will affect frequency of solid waste disposal and flexibility of operation.
- The available workers at the disposal of the firms are also few. Again, this will also affect speed and efficiency of service delivery.
- Deriving from the observations above, it is not difficult to conclude that limited financial resources are available to the firms.

CONCLUSIONS

It has been found that solid waste management problem finds expression in the visible appearance of solid waste in the environment of residential neighbourhoods. Attempts are being made by the public waste collection agency to improve the city's capacity to manage its solid waste through the participation of the private sector waste collectors. The waste collectors have shown their interest in the partnership and mobilized the resources at their disposal to make the partnership work. This paper holds that the ensuring partnership is commendable and favourable to good governance process. It represents a new approach in realigning responsibilities between the government and the private waste collectors [19]. It is also true to say that the partnership is opening a window of opportunity for employment creation within the city and by extension individual capital formation. In all these respects, human development is being aided. It is also noteworthy that majority of the people appreciate the partnership arrangement and wish that it is sustained. Having said these, it is also instructive that the organized private waste collectors also suffer from weak capacity. Their present capacity is not helpful to the enormity of the solid waste problem. It is therefore not surprising that solid waste remains a major problem within housing units and within neighbourhoods in Minna. This has enormous implication for the quality of the environment. There is also some problem with the exclusive approach to the operation of the organized waste collection. The effects can be seen in the fact that the neighbourhoods with organized waste collection are less worse off in sold waste status indices as opposed to the other neighbourhoods which do not operate organized collection of sold waste. Against these backgrounds, it is important to recognize the following;

- There is a need for the consolidation of the organized waste system. This should be done first by making the organized waste collection operative in all neighbourhoods. In this case, it will become mandatory for all households to patronize the waste collectors.
- The capacity of the waste collectors must be improved by appropriate capacity building efforts. The firms will have to employ more workers and get more operating equipment and ensure a better office organization.
- More private firms should be registered to participate in managing solid waste in Minna. This is important since the unit scale of operation of the firms is low. It is also hoped that a large number of firms will constitute enough capacity to cope with the city's daily waste generation.
- Efforts should be made to correct the problem of irregular collection by the private firms. Ensuring regular collection should be part of the ways of monitoring the performance of the firms.
- The people must be seen as part of the partners in the engagement of the private sector. The private waste collectors should be integrated with the communities and together they should work to eliminate the problem of irregular collection, payment of charges and even adjustment of charges when desired.

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