

Household Waste Management in Cameroon: The Case of Bamenda and Buea Municipalities

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ABSTRACT

Urban sanitation and hazard risk reduction strategies that aim to maintain a clean and healthy society will only be successful and sustainable if it includes educating and training the people on how to handle their household waste. Nations and organisations must innovate in order to sustain the health of population growth and other global demands. It is not easy to obtain a complete assessment of risk involve in any undertaking. The problem is even more in an innovative project like the case of hysacam waste disposal in Buea and Bamenda in Cameroon. What distinguishes standard processes from innovation is their level of uncertainty. Therefore, ways of assessing and addressing the magnitude of risks involve must come high on the list of techniques for managing innovations. The risk surrounding garbage disposal in Cameroon is a course for concern. The objective of this paper is to present and discuss the assumptions which underlie the key frame of reference used to understand waste disposal in order to make garbage disposal using the new system risk free and sustainable. The study focuses on household's waste disposal in Bamenda and Buea towns in Cameroon. According to prior studies in this area, (Jake Ansell & Frank Wharton 1992; Keith Goffin & Rick Mitchell 2005) risk is an unavoidable feature of human existence. Neither man nor organisations/societies can survive for long without taking risks. Mark and Eve (2006) suggest that people be advised to separate organic waste from solid waste before depositing for collection to a composting depot. Data was gathered through face to face interview with those disposing garbage and the population concern. In all, 150 people were interviewed, 5 employees holding executive posts, 35 workers involve in the day to day carrying of garbage, 100 service users in the town of Buea and Bamenda where the service is being delivered and 10 people, both service delivers and service users in Douala (Cameroon) where such a service started and has since been operating for long (since the 1960s) were interviewed. Data is analysed both qualitative and quantitative. Result suggests that while the innovative garbage disposal technique is good as it is quick and cover large areas, keeps the city clean for healthy living, it is an innovative action therefore, both the service providers and users need to be trained (educated) to make the service worthwhile and sustainable. Education will empower people with appropriate knowledge on how to handle garbage with care. The implications would be: reduced risk of bacterial spread in streets, reduced ardour, clean air and quality well being greatly improved. The validity of the study lies in its ability to spread information that can improve the operation system of garbage disposal, making the service attain its objective of keeping a city clean and promote healthy living.

Key words: Bacteria; Disposal; Education; Environment; Garbage; Innovation; Risk

INTRODUCTION

House hold waste (HHW) is no longer limited to organic waste as was the case in yester years. House hold nowadays consumes many chemically oriented products that require special disposal mechanism. As such, to ensure proper disposal of HHW proper education and training of those involve in the process, in fact the whole community is imperative. The government of Cameroon decided to introduce a new system of waste disposal in the South-West and North-West Regions of Cameroon. Before this innovative system, the people of these regions have been disposing their waste (domestic waste) by burying and scattering in farm lands. With the growing amount of household waste mix with plastic papers and cans, there is of course, the need to introduce a safer way of disposing off such waste. So, the introduction of a vehicle carrying household waste on a daily, weekly or twice weekly basis is a welcome innovation that needs to be sustained. However, there are uncertainties surrounding this new technological innovation such as cultural and social implications that need to be considered. Siobhan et.al (2006) assert, with the introduction of a new technology there should be a period of societal adjustment to that technology. In recent years, the issue of innovation and the need to create innovative new services has steadily moved up in the public sector agenda (Mark Napier 2009). While there is a heightened interest in this innovation, the use of it is ineffective. The community has not been given the required education and training to master the innovation. Such training cannot be left in the hands of the government alone, producers of new products introduced to house hold use have the responsibility to train the community on how to use and dispose off the waste of such products. There are many ways of disposing waste, of which some can be very useful to the community and the environment. For example, reusing, recycling, and land filling are all among other options for waste disposal, and whichever way impacts on the environment. Good management can potentiate a better use by creating new resources. Griffin (2019) discusses how emerging technologies link to innovation and creativity can be of immense benefit to the community. The author goes on to say how the progress of the society hangs on the proper contribution of technology, knowledge and the will of taking risk. Innovatory focuses on a more delineated context surrounding firms when they start learning how to become independent by using available resources (in this case turning waste into useful resource). This makes it imperative for a well educational and training program for people to master the innovative waste management technology. The use of such a technology should not be left to pervasive learning. An educational programme directed towards the training of users is very necessary and important.

According to Elsayed Elbeshbishy and Frances Okoye (January 22nd 2019). Improper Disposal of Household Hazardous Waste: Landfill/Municipal Wastewater Treatment Plant, Municipal Solid Waste Management, Hosam El-Din Mostafa Saleh, IntechOpen, And DOI: 10.5772/intechopen.81845. Available from: <https://www.intechopen.com/books/municipal-solid-waste-management/improper-disposal-of-household-hazardous-waste-landfill-municipal-wastewater-treatment-plant>, (visited the website on 17th June 2021). Improper disposal of HHW introduces harmful compounds which cannot be removed by treatment facilities into the environment, and these chemicals end up in human, animal, and plant tissues. What constitutes to inadequate disposal varies from pouring down the sink or drainage, dumping in the garbage or even out on the ground outdoors. Even when proper disposal routes

are provided by municipalities such as drop-off centres, many classes of HHW are still disposed in the garbage. Public education, source separation, and recycling are key strategies to reducing the quantity of HHW stream into municipal facilities and by extension of the environment. The success of these strategies for HHW disposal requires voluntary action from residents, legislation from governments mandating manufacturers to take better responsibility, and schemes that make proper disposal more accessible to residents put in place. The problem faced by countries that still depend on fetching drinking water from streams is that most of the waste dumps alongside the roads and in gutters end up in the streams when it rains. With poor or inadequate pipe born water supply to towns and cities, the people depend on the polluted means as their source of water supply, and the health risk are numerous.

Very often, the government gets so engrossed in the technology of the change they are interested in promoting that they become oblivious to different types of problems that maybe bothering the people involved in using the new technology. Technological change under the umbrella of modernisation has to be gradual, making room for learning to take place. Primitive man was at peace and harmony with his/her environment. The situation is different today. Humankind is no longer at peace with the environment. Technological advancement is changing relationship between humankind and the environment, but societies cannot remain stagnant, some form of harmonious relationship needs to exist between people and the environment. We have had successes and failures in the management of our environment. Time has come for us to manage our well-being, economy and ecology well and preserve a good environment for future generation. Subsequent generations, encouraged by Western philosophers and Christian religions set human being apart from his environment arguing that the world and its resources had been created for man's exclusive use (Ashby 1978). According to White (1967), Human beings are superior to nature, contemptuous of it. Through the ability to communicate, the human being has been able to learn by observation and experience to understand cause and effect, to form conceptual models of his/her own and the environment's behaviour. Mankind has been able to anticipate and to an increasing extent control his/her environment and destiny. That very humankind is, due to the quest for rapid development making the environment unsustainable for future generations.

Hysacam, a garbage disposal company in Cameroon started an organised system of household's refuse disposal in the Buea and Bamenda municipal councils in 2010. Households put garbage in various locally made containers: shopping bags, broken baskets and half drums for garbage carrying vehicles to stop by and carry for disposal. This system of garbage disposal has been functioning in other parts of Cameroon since the 1960s and only introduced to these two regions in 2010. Culturally, in this parts of the country household refuse were carried in containers and spread in farms as a way of disposing and for it to form manure for the fertilisation of farms. This system of waste disposal had two objectives: to dispose off waste and to produce manure for the plantation of crops, and one could talk of organic farming. People were sensitised to separate tins (non-disposable from disposable dirt) and throw into pit latrines (locally dogged toilets). This system worked well in villages. In urban areas, there were incinerators for waste disposal and sanitary officers were in charge of garbage disposal. Rapid population growth warranted the creation of many incinerators which became hazardous to the society due to its high rate pollution spread in the form of toxic smoke. Population have tripled the use of chemicals and other materials for productions and household

related activities multiplied, calling for a new way of disposing waste. New knowledge acquired has accelerated technological development to take care of this new society which is totally different from early creation and setting, focused in meeting the aspirations of quality livelihood.

Increasing use of chemicals and other substance puts great pressure on the environment and the need in meeting quality livelihood demands of citizens. A new system of waste disposal becomes imperative in meeting the exigencies of the time. New disposal pits are created far off inhabited areas. The door-to-door system where vehicles are put in place to collect household dirt has come into existence. The newly introduced techniques of garbage disposal are not disruptive per se; it is easy and encourages general cleanliness. The problem observed is that the same types of containers that were used to take dirt to farms are still those used to carry garbage to the waste disposal vehicles. This act by households courses hazard and ill-health both for the dirt collectors and the service users, as chunks of waste fallout from the broken containers into the roads litters the environment and also make it difficult for people to walk about. Dirt is also not separated (broken classes from non-organic waste). In developed countries, this system of garbage collection functions well, we observed that the society is educated and constantly sensitised on how to separate garbage (broken classes from organic waste). Councils also provide different colours of containers to contain the different waste types, and people educated on how to use these different containers. Accessibility for the vehicles is extremely important and when the towns are well planned, and all houses have access to the dirt carrying vehicles. The garbage is well packed into containers for the vehicle to neatly carry them away. Where there are deposited, its treatment is done without people hurting themselves in trying to separate.

Without the provision of necessary structures and education and training, the considerable approach, material and social advantages that have accrued from the use of technology have been accompanied by a whole new host of largely man-made hazards and treats to the quality of life if not to life itself, Meadows (1972). In Cameroon, towns are not well planned, poor roads and accessibility to households difficult. To enjoy the services rendered to us by technology, we must make effort to understand the intricacies involve. The Bruntland Report (1987), our common future should be a guiding principle for waste management. In generating a concept for a new augmented service, ideas can come from a number of sources. Cameroonian policy makers have the tendency of shying away from public opinions, local techniques and even their historical development, making every innovation difficult for people to enjoy though the idea could have been existing in the society for long in other forms. This perspective needs to be given careful thinking, because societies and researches gain insights not only from newly created services but also from possible service augmentations. There is a positive side of waste management. Peiry et al (2016) see waste management as a profitable business rather than a costly problem, creating green business opportunities and green jobs while protecting the environment. Proper waste management becomes a driver in the transition to a green economy. Townsend, et al (2017) provides innovative and timeless insight in new ways and cognitive mapping which drives human resource development.

PROBLEMS

The problem in the newly introduced system of household's waste disposal in Buea and Bamenda municipal councils is that the various containers used by households to take their refuse to the road side for the garbage disposal vehicles to carry are risky (torn bags, broken buckets and drums). First, lifting these desolated containers to empty into the vehicles and return them back to the people as they always demand that the waste collectors do, waste pours out into the road, making the road unsafe for people to walk about as it becomes littered, slippery and smelly. Second, the vehicles often park in the middle of the road, causing serious traffic jams and accidents. Third, as some of the dirt empties on the roads the whole area smells and becomes discomforting, increasing poor health. Fourth, with waste on the road, the road becomes slippery to pedestrians, bicycles and motorcycles riders and even vehicles. Many people have been observed to slip off the roads. Accidents have become too frequent. This also puts great strain on health service delivery. There is a vicious circle effect; poor health leads to low production and high social cost to those impacts negatively by the act. Improper HHW is poisonous to both human and animals and even plants. It diminishes natural resources and is also contaminating to the soil, hindering plants from growing.

OBJECTIVE

The objective of this paper is to present and discuss the assumptions which underlie the key frame of reference used to understand waste disposal in order to make garbage disposal risk free and sustainable. It discusses how proper waste disposal can improve the quality well being of citizens. To also suggest possible ways of sustaining the use of the innovated waste disposal system.

Views on Waste Disposal and Risk Management

The word risk is thought to be either the Arabic word "risk" or the Latin word "risicum" (Kedar, 1970). However, Rowe (1977) defines risk as 'the potential for unwanted negative consequences of an event or activity', and Lowrance (1976) defines risk as 'a measure of the probability and severity of adverse effects'. In Ehrbar (1998), Enterprise Risk Management's (ERM) intention is to create value and mitigate risk. Handling risk and hazard is indeed to be a 'middle way' approach to institutional analysis. It is designed to a broader and more general perspective than it is yielded by microscopic approaches, which tends to focus on the setting of safety standard alone (Christopher Hood et al. 2001). In Dickenson's (2001) view, identifying and prioritising risks, either with foresight or following a disaster has always been part of business management of all sorts. What is lacking in this claim is, appreciating the risk. Risk can be identified, but unless those concerns appreciate the risk or potential risk, it would not be taken seriously and therefore will not be catered for. Some risks are uncertain, and therefore difficult to assign a probability to its occurrence. Business organisations face both financial and hazard risks. Whether it is financial or hazard risk, basically the individual or business involve eventually loses money. Having said that, this study is on enterprise hazard risks. Risks are usually transferred to insurance companies. People take insurance when they know the riskiness of an undertaking. In cases like the household garbage disposal in Buea, Bamenda or elsewhere in Cameroon, the project is an innovation in that the way of waste disposal has changed from the traditional way. Therefore, both the service deliverers and users need to be educated and trained on how to handle waste. The acceptance that there are risks involve in organisational practices has made management to include risk management as part of the

responsibility of senior management. What is still worrisome is that of treating risks in a holistic way. Doherty (2000) acknowledges the shift of risk management from organisations to insurance companies. This is still worrisome because hazard risk varies, and not many people have insurance in Cameroon for example. Risks differ in their nature and magnitude, and therefore require experts' management. Risks can be characterised by a number of driving forces (Melchers 1998). McDonald (1998) attributes some driving forces to the emergence of ERM. ERM are many and varies. Dickenson warns against the treatment of only familiar risks, arguing that insignificant risks have the potential to cause great damage as they interact with other events and conditions. Stanley and Hensher (2019) identify areas of challenge setting out a wide ranging agenda and major components of transport policy which disposal companies can benefit from. Macheris and Baudry (2018) in line with this provide essential resources for any one involve in evaluation and decision-making for sustainable transport and logistics. The argument fits well with the innovative garbage management system in Buea and Bamenda as the drop out waste from containers are not seen as risk that can cause havoc; but as being very insignificant and incapable of coursing any hazard. They fail to look at the consequences of wrongly packed waste collecting vehicles causing accidents and other hazards. Ignoring remote risk can be inviting hazard. Poor refuse disposal, collection and transportation have serious consequence on the environment and health. In towns with poor constructed drainage system, fallen garbage from waste deposit companies after serious rainfalls flood and block water passages causing flood that often take some of the garbage back to living quarters. This adds to the vulnerability of settlers. Douala, the economic capital of Cameroon is an example of drops of garbage carried into people's homes by flood, adding to the fact that Douala is a town below the sea level, poor drainage and waste disposal expose the inhabitants to high risk. Ruth Matthias and Goesshing Reisemann Stefan (2019) present excellence evidence and convincing argument that resilience is an adaptive learning system that is not only able to cope with unpleasant surprises but can also grow as a result of such surprises. Look at the case as narrated by Ode Magazine May 2005, "that a whale washed off the Coast of France in 2002 had 800 kilos of plastic bags in its stomach". Apparently, most of these plastic bags waste were from house hold or industrial waste indicating the improper form of waste collection and management.

The decision to treat or exploit waste depends on the nature of risk. Generally, risks are retained in organisations, but those concerned are advised to take out insurance cover in order to defray the high cost of treatment in case of illness of any sort. In this case, risk is said to have been transferred to the insurance companies. Organisations endeavour to reduce risk by providing necessary equipments to workers (see Haimes 1998). Bernstein (1996) suggest, a common risk vernacular be created across disciplines throughout an organisation. This used to be the practice among workers of the Cameroon Development Cooperation (CDC). Although it was not formally created, the workers in order to avoid risky endeavours or alert colleagues of a risky act tacitly developed dialects understood by workers of a certain category to get messages across to their fellow workers about the riskiness of a given job to be undertaken. Managing an environment calls for high level of intelligence. Mankind must be thorough and rational in assessing the risks and benefits involve in any project and device necessary means of avoiding or minimising the occurrence of risk and hazard that calls for great policy decisions. Mario et al. (2001) in a risk management study carried out in a newly created electricity plant based their analysis on probabilities. This was possible because the plant had been existing for long and number of accidents could be estimated. In the case of garbage management in Buea

and Bamenda, it is an innovation so there is no compass. Bathelt et al. look at innovation as a concept, institutions, as creativity channelled through temporal or permanent shaping changes and development. In the same light, Godwin and Vinck (2017) look at innovation from different perspective, asking what has been left out. The riskiness of the way waste collection is managed can only be based on imagination and observation from other places where such garbage management is operational before assessing their consequences and analysed as such. Jason and Gleick (2004) conducted a study on water supply and found that climate change could increase the risk of shortage in the future. Hollo (2017) looks at the scarcity of water, flood and erosion caused by climate change which makes the management of water resources a challenge to national and international actors worldwide. Take for example, in the case of flood, mismanaged waste are swept into drinking water tanks causing much damages to the population. There is therefore the need to include external environment in assessing risk. In the case of garbage management in the two regions of Cameroon for example, external factors such as: rain and wind are capable of transferring garbage drop out to distant places, increasing the risk of ill-health, and other related hazard.

Parizeau et al. (2008) present three arrangements in garbage collection. There are:

- Door-to-door; or a common scheme of alerting the society of their arrival.
- Ring a bell to notify residents to bring out their waste outside their houses by the road side for collection; and
- Collection from multiple drop-off sites.

Door-to-door could have been good for Cameroon since the people are not yet conversant with the system of arranging dirt and carrying to the road side neatly, and secondly because the towns are not well planned and numbered and accessibility nearer homes is very limited.

Ring a bell to notify residents to bring out their waste outside their houses to the road side for collection causes the problem of dirt dropping everywhere since the containers are very often broken buckets, torn cartoons and torn bags. In situations where the people are trained on how to handle waste and containers distributed to households as is the case with hand washing buckets because of COVID19, this could be the best option.

Collection from multiple drop-off sites involves the provision of communal bins for waste disposal at multiple points. This system was practiced in Karachi-Pakistan, and an independent evaluation found that the system was successful in improving the cleanliness of the area. Their only problem was finding space for the containers to be placed. The communal bins dropped off sites system was experimented in Yaoundé-Cameroon but failed. The bins provided by the councils were small easy to carry drums, so they were all stolen in less than three months. The failure was never researched into, but the mayor immediately attributed it to political hatred and the approach died a natural death. However, in Buea, the arrangement is, the vehicle sounds its horn and the people take their waste to the vehicles. The provision of communal bins at multiple points can be a good option, but the town is very stony such that people will prefer to dump the waste in gutters since there are many gutters running down from the mountain. In the case of Bamenda, the town is too porous and poorly planned. Secondly, households can deposit their garbage in the container at any time conducive to them without any rush. The use of broken containers would be reduced as individuals will find it discomforting to carry them

and walk a distance. However, the approach requires some educational effort and sensitisation. The problem with large containers is that poor town planning constraints the deployment of big containers. Also, with the prevailing attitude of lack of duty consciousness the disposal of large containers may often take a long time, thereby increasing the hazard situation. Mark and Oscar (1983) advise that management establishes internal procedures by which they may become aware of new speculative risks assumed as promptly as possible, so that pure risk aspects can be analysed and managed expeditiously. The policy makers have the tendency of just implementing decisions without examining the problems involved, and this often precipitates failures. Given a participatory policy formation, waste produces by people can become a common good for the people.

Nijs Diane (2019) presents different types of innovation policy and systematic designs approaching and Imagineering through collective creation. Recognizing that preventive solutions require attention to the community environment, it becomes vital to focus on the identified environmental conditions to determine and implement comprehensive solutions. The spectrum of prevention provides a systematic framework for developing effective and sustainable community prevention efforts (Sana Chehimi, et al. Larry Cohen and Erica Valdovinos 2003). Sana et al. put a table of the spectrum of prevention. Table 1 presents the spectrum.

Table 1 The Spectrum of Prevention

Influencing Policy & Legislation
Developing strategies to change laws & policies
Changing Organisational Practices
Adopting regulations & shaping norms
Fostering Coalitions & Networks
Convening groups & Individuals for greater impact
Educating Providers
Informing providers who influence others
Promoting Community Education
Reaching groups with information & resources
Strengthening Individual Knowledge & Skills
Enhancing individual capacity

Source: Sana Chehimi, Larry Cohen and Erica Valdovinos (2003).

According to Ansell & Wharton (1992), in every sector of risk management, there is an unavoidable need to incorporate subjective and judgemental contribution in the process. Rescher (1983) points out that rational management of risk calls for adherence to three cardinal rules:

1. The maximization of expected values.
2. The avoidance of catastrophe.
3. The ignoring of remote possibilities.

The evolution of risk has been discussed, and risk taking in order to benefit from the gift of nature and technological advance is inevitable. ERM is a strategic decision that improves decision-making at all levels of the organisation (business Insurance 2000). From this stand point, we can only talk about how to be careful to avoid catastrophic accidents. From this

perspective, Rescher (1983) cardinal rules therefore, constitute the analytical framework of this study. To direct this study, the following hypotheses were formulated:

H1: The service users have little or no knowledge about the new way of disposing waste, and therefore sceptical about using the innovation.

H2: Service users like the service but need to be trained and enlightened on how to use the service.

METHODOLOGY

Gathering information is central to all researches. Information about risks can be gathered in many ways, it can be obtained by regulators conducting their own analyses and experiments. It can be provided voluntarily by complainants or whistleblowers or individuals willing to contribute to common learning (Christopher Hood et al. 2001). Data was gathered through face to face interview with those disposing garbage and the population concern. In all, 150 people were interviewed, 5 employees holding executive posts in the garbage carrying company, 35 workers involve in the day to day carrying of garbage, 100 service users in the town of Buea and Bamenda where the services are being delivered and 10 people, both service delivers and service users in Douala (Cameroon) where such a service started and has since been operating for long (since the 1960s) were interviewed. Tape recorders facilitated the process. Data is analysed both qualitative and quantitative.

FINDINGS AND ANALYSIS

Hysacam field workers presented the following views:

Hysacam started in the city of Buea-South West Region in 2010. We the pioneer workers were employed in September same year and given a four months training on how to collect and handle waste. We assumed duty in April 2011. The company offers good incentives. Though the basic salary is low, they offer many allowances that make working for them worthwhile. They provide us with milk and risk allowances, and other risk preventing equipments like; gloves mask and colourful wears that signal drivers about our existence on the road.

We are in three groups; those responsible for general sweeping of streets, those collecting household waste and loading in the vehicles/offloading, those separating between disposable and non disposable waste after the waste has been discharged. Separation is very dangerous, the company recently advised hospitals to always separate syringes from other waste because separating it from other waste is harmful.

When we are cleaning the roads and the gutters, people keep on throwing peelings and other forms of garbage; when we react they insult us saying that without them throwing those peelings or dirt, we would be jobless. Service users use torn and smelly bags and expect us to empty into the vehicle and return the bags to them. When we do not comply with their request, they insult us. This is intimidating. The view was similar for Bamenda in the North-West Region of Cameroon

There is a composting depot where organic garbage is separated from solid waste.

This is in line with Mark and Eve (2006) where in South Africa such waste separation takes place and the organic waste is either sold or recycle for use in the community gardens. In the

case of the waste carrying in Buea and Bamenda, it is not yet decided on what to do with the organic waste after separation. The intension of the service provider of the South African garbage waste is to ensure that 95% of solid waste is either sold to recyclers or retained on site for productive re-use (Mark and Eve 2006). In Cameroon, service users do not separate organic waste from solid waste, making it difficult to handle at the depositing point. At the depot the group in charge of separating organic from solid waste is worried over the fact that waste is not separated from the source. Also, packing waste for disposal is not properly handled.

Service users

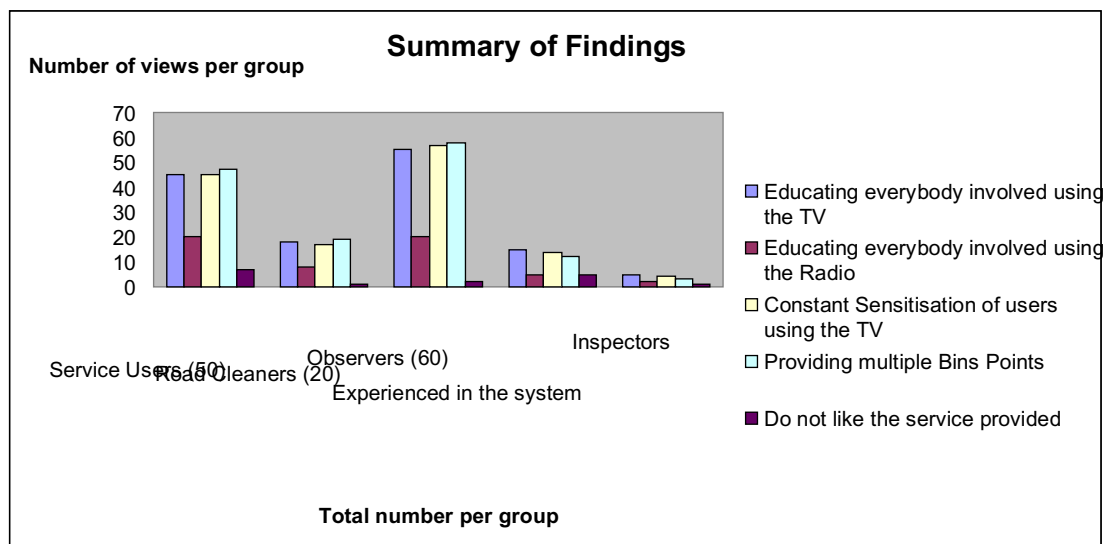
The service users are happy and excited. According to them, the service provided is a well thought through act since they do not have farms to deposit their garbage as it is done in villages. Their worry is that containers have not been provided by the council to enable them deposit their waste for the vehicle to just load on their arrival, rather than depositing and returning smelly baskets. According to the service users, if bins points are provided, people will be forced to look for good containers for taking their garbage to the bins points because they will be ashamed to walk about with smiley and torn bags, and garbage drop of will be reduced. Talking to the service deliverers about the provision of communal bins as suggested by Parizeau (2008), some recount the situation in Yaoundé, capital of Cameroon; where communal bins were kept but were stolen. Stealing the bins should not pose problems. The process can be modified: big bins can be kept at the drop-off sites, or if that is very expensive for the council, smaller bins could be placed and chains used to tie them to pillars planted in the grounds. Trying to steal them by the people will take time cutting the chain and those attempting such acts would be caught. Drop-off points should also be made short. When the drop-off points are far, people become reluctant to walk there especially when it is raining. Also, disciplinary measures for those dropping waste on the streets should be severe and made known to the people. From the general public, smelly environment immediately after garbage collection creates breathing problem for people. General opinions were that asthmatic people find it difficult to walk about when the vehicles are operating in an area.

According to all interviewees, except those of service delivering suggested that while garbage disposal service is good because it keeps the city clean for healthy living, both the service providers and users need to be educated to make the service worthwhile and sustainable. Views from the service providers suggested that their field workers are adequately trained. The problem being that the service users have not been educated on how to handle their garbage for collection. Ignoring the danger of remote risk possibilities as warned by Rescher (1983) has not been catered for by the service providers in their decision-making process. This can result in catastrophic situation, and turn the maximization of expected values of garbage disposal into maximization of cost, (high hospitalisation bills for example). The characteristics that most distinguishes innovation projects from others is their level of uncertainty, therefore, ways of assessing and addressing risks must come high on the list of techniques for managing innovation projects (Keith & Mitchell 2005). Certain suggestions for action were emphasized by all interviewees. These appear in table 2.

Table 2: Views presented by interviewees on garbage carrying services

Suggestions	Service Users Total (50)	Road cleaners Total (20)	Observers Total (60)	Experienced in the system Total (15)	Inspectors Total (5)	Total (150)
Educating everybody Involve by using TV	45	18	55	15	03	136 (91%)
Constant sensitisation By use of TVs	45	17	57	14	04	137 (91%)
Educating/sensitisation using radios	20	08	20	05	02	37 (25%)
Providing multiple Bins points	47	19	58	12	03	139 (93%)

From table 2, we find that educating everybody involve is highly expected and paramount in both cases since the service is new. Views suggest 91% for both sensitisation methods. That the television is used to constantly sensitise people on how to deposit their household waste is highly desirable, and also gives 91%. Providing multiple bins points is accepted by almost all the interviewees and this is indicated by the highest response rate, 93%. Using the radio to educate or sensitise people rated lowest 25%, and the argument given was that radio presentation does not carry images and therefore not very convincing.



Defending the hypotheses

From table 2, the views presented and those presented earlier suggest that the service user want the service, but need to be enlighten on how to use the service effectively and in a risk-free manner. Therefore H1 which suggest that the service users do not want the service is rejected in favour of H2 which suggest that they need to be educated. The result of this study can be seen to tie with some points in Sana Chehimi, et al. Larry Cohen and Erica Valdovinos (2003) spectrum as outlined in table 1 in this study.

CONCLUSION

The high percentage of interviewee's positive response to the proposed method of sensitisation and for the provision of multiple bins points as suggested by table 2 is an indication that the garbage carrying service is very welcome by the community. This should motivate policy makers to put in place resources to educate people, promote and sustain the interest. From this research, the idea of garbage disposal is not a strange concept, what is new is the process now put in place. This requires policy makers to undertake constructive policy measures and institutional reforms; such as training households and the society at large on how to prepare their garbage for disposal and also improve on the road infrastructure to ease the process for sustainability. Such move is likely to promote cleanliness and good health in the society because when the service providers and users are appropriately trained to handle garbage with care, the level of spillage that causes hazard would be reduced and quality wellbeing improved. We have to improve on our knowledge of waste collection, disposal and management. Macfarlane Robert (2006:28) is categorical on this as he points out "once this awareness has lapsed, then landscapes beyond those private precincts become easier to manipulate for all. Once the network of origin cause and process which exist between environment and life are forgotten then we are left with diminished idea of how individual parts of landscape are threatened by pollution or mismanaged development." A new attitude and approach on HHW collection and disposal is imperative for us to have a healthy environment and this requires a thorough and well articulated educational and training program.

RECOMMENDATION

It is recommendate that for a successful and well integrated policy approach to waste collection, management and disposal the following be done:

- Creating national awareness of the need to have a healthy environment,
- Educate the population at all strata of societal levels on waste collection, the need to keep the environment clean and the possibility of turning some of the waste into useful resources for the society and for future generation
- It is equally important to increase the involvement of influential local actors.

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This was also the case in India where the colonialist following the plague epidemic in 1896 did not also care about the well fare of the Indian workers and instead responded to the situation by dividing the city into two parts, the indigenous and the Europeans and took care of the European side (Susan, 2011)

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