



Journal of Health and Medical Sciences

Basiru, Ibrahim, Arkorful, Vincent Ekow, Ashu, Helen Agbornso, and Lukman, Sadia. (2019), Challenges Affecting Sustainability of National Sanitation Day (NSD) Programme in Ghana. In: *Journal of Health and Medical Sciences*, Vol.2, No.1, 58-67.

ISSN 2622-7258

DOI: 10.31014/aior.1994.02.01.20

The online version of this article can be found at:
<https://www.asianinstituteofresearch.org/>

Published by:
The Asian Institute of Research

The *Journal of Health and Medical Sciences* is an Open Access publication. It may be read, copied and distributed free of charge according to the conditions of the Creative Commons Attribution 4.0 International license.

The Asian Institute of Research *Journal of Health and Medical Sciences* is a peer-reviewed International Journal. The journal covers scholarly articles in the fields of Medicine and Public Health, including medicine, surgery, ophthalmology, gynecology and obstetrics, psychiatry, anesthesia, pediatrics, orthopedics, microbiology, pathology and laboratory medicine, medical education, research methodology, forensic medicine, medical ethics, community medicine, public health, community health, behavioral health, health policy, health service, health education, health economics, medical ethics, health protection, environmental health, and equity in health. As the journal is Open Access, it ensures high visibility and the increase of citations for all research articles published. The *Journal of Health and Medical Sciences* aims to facilitate scholarly work on recent theoretical and practical aspects of Health and Medical Sciences.



ASIAN INSTITUTE OF RESEARCH
Connecting Scholars Worldwide



Challenges Affecting Sustainability of National Sanitation Day (NSD) Programme in Ghana

Ibrahim Basiru¹, Vincent Ekow Arkorful², Helen Agbornso Ashu³, Sadia Lukman⁴

^{1,2,3,4} University of Science and Technology of China, School of Public Affairs

Corresponding Author: Ibrahim Basiru. Email: ibasiru@mail.ustc.edu.cn / ibrahimkimsanz57@yahoo.com

Abstract

The National Sanitation Day (NSD) programme was initiated by the Ghanaian government in 2014 through the Ministry of Local Government and Rural Development as a way of addressing the poor environmental conditions in Ghana. This was as a result of a cholera outbreak which took over 200 lives in the same year. Although well intended, the programme faces several sustainability challenges. Therefore, the purpose of this study is to examine the main challenges facing the NSD programme. The paper bases on newspapers and key informant information and identifies four shortcomings which undermine the initiative's effectiveness, namely, lack of adequate logistical services, politicisation, insufficient enforcement of by-laws and poor publicity. Against the backdrop of these findings, suggestions are made on the trajectory of sustainability.

Keywords: National Sanitation Day, Poor Waste Management, Sustainability, Ghana

1. INTRODUCTION

Proper management of solid waste remains a severe problem across the world. This is especially observed in developing countries, and Ghana is no exception (Kocasoy, 2000). Besides increasing population, improved lifestyle and habit of people have precipitated an increase in the quantity of solid waste generated in both rural and urban areas of the world (Agarwal, Chaudhary, & Singh, 2015). Kocasoy (2000) claimed that the production and consumption of new products, industrialisation, and rising disposal income are jointly generating increasingly inordinate quantities of solid waste. This, in turn, is creating numerous problems regarding their proper collection and disposal. Currently, world cities generate nearly 1.3 billion tons of solid waste annually. This volume of waste is expected to surge to 2.2 billion tons by the end of 2025. The rate of waste generation will double over the next two decades, especially in developing countries. Globally, the annual cost of solid waste management will rise from today's \$205.4 billion to approximately \$375.5 billion in 2025. The cost increase will be most severe in developing countries (Hoornweg & Bhada-Tata, 2012). Human activities generate waste, and the means by which this waste is managed can pose risks to the environment and to public health. In urban areas in developing economies, issues and problems of municipal waste management are of immediate importance (Zurbrugg, 2003). This has been recognised by most governments, but growing populations are affecting the ability of most local governments to provide even basic services. Usually, one-third to two-thirds of the solid waste produced is not collected.

Scores of municipalities in the least developed and developing economies spend about 30 to 50 percent of their constrained budget on municipal solid waste management. However, they manage to collect only approximately

30 to 60 percent of the solid waste, leaving more than 50 percent of the urban population unserved (Onibokun, 1999). As a result, the uncollected solid waste, which is occasionally mixed with excreta, is dumped anywhere, such as streets and other public places, thereby posing serious environmental hazards (Amoah, 2014). In the city of Rawalpindi, Pakistan, for example, 30 to 50 percent of uncollected waste remains on the roadsides and other open spaces, spreading infectious diseases (Ejaz, Akhtar, Hashmi, & Naeem, 2010). According to Hoornweg and Bhada-Tata (2012), uncollected solid waste, more often than not, is the leading contributor to flooding and air pollution. Sam Jr. (2002) argued that water pollution is another important potential consequence of inadequate waste management. Unregulated waste leachate near watercourses exposes city dwellers to the risk of urban flooding and increases the technical difficulties of providing clean water. Flooding occurs when drainage systems and other storm-control devices overflow caused by blockages of waterways. Diseases due to poor management of waste, including malaria, dysentery, and cholera, can cause illness and death. "Solid waste management is almost always the responsibility of local governments and is often their single largest budget item, especially in developing countries" (Hoornweg & Bhada-Tata, 2012). Studies have extensively shown the failure of poor local governments in developing countries to ably plan and handle municipal solid waste (Okpara, 1999).

Ghana is a country located in the West Africa sub-region. It has a total area of 238,533 km² and is thus almost the same size as Great Britain. Ghana lies between 4 and 12 degrees north latitude and 4 degrees west and 2 degrees east longitude. It shares borders with Cote d' Ivoire to the west, Burkina Faso to the north, Togo to the east and Gulf of Guinea and the Atlantic Ocean to the south. Agriculture is the main stay of the country's economy (Abalo, Peprah, Nyonyo, Ampomah-Sarpong, & Agyemang-Duah, 2018). The projected population of the Ghanaian economy for 2018 is approximately 29,614,337, with an annual growth rate of 2.39 percent. However, this growing population does not happen alone. It is accompanied by the generation of large quantities of solid waste, which stems from the changing consumption habits of the population and the changing structure of Ghana's economy. Together, these factors facilitate the production of different kinds of waste, particularly municipal solid waste (Abalo *et al.*, 2018).

Ghana, as a developing country, encounters difficulties in managing waste extending from the state to the local government, and refuse of different shapes and sizes is a common sight in rural and urban areas. These difficulties are concentrated and made more difficult by population pressure (Thompson, 2010). The amount of waste produced is far greater than the volume collected. Solid waste collection services are inadequate for covering most of the country's cities (Boadi & Kuitunen, 2003). In Wa, Ghana, approximately 810 tons of solid waste is produced per day, of which only 216 tons are collected. This leaves 594 tons uncollected and seriously threatening the environment and public health (Amoah & Kosoe, 2014). In the same vein, 2,800 metric tons of municipal solid waste is generated daily in Ghana's capital, Accra. Out of this amount, about 2,200 tons are collected, leaving a backlog of 600 tons accumulating in water bodies and open drains and causing flooding during the rainy season (Badoe, 2014). In 2014, Ghana recorded approximately 28,922 cholera cases with around 247 deaths resulting from the country's poor waste management. According to a report from the Ministry of Health (2014), this figure was the largest number of cholera cases recorded in the last 30 years. This situation threw the entire nation into a state of shock and impelled the government to create a programme (or establish a special day) for involving the citizens in keeping the country's environment clean, hence the name "National Sanitation Day (NSD)."

There is an overwhelming amount of literature on the sanitation in Ghana. Much of this research is based on factors causing poor sanitation or impacts of poor waste and sanitation management. However, studies that specifically focus on the NSD programme are rare. A review of the literature suggests that some successes have been achieved due to the introduction of the NSD programme, but the initiative remains marred by several sustainability challenges. The current research looks into the concerns that affect the NSD programme and proposes measures that could given full consideration, sustain it. Specifically, the study clarifies the concept of solid waste, municipal solid waste, and solid waste management. It explains the NSD programme and sustainability in sanitation programmes. This is followed by a discussion of the methods adopted for collecting data. Finally, this work identifies and analyses NSD programme challenges and offers recommendations for sustainability where necessary.

2. LITERATURE REVIEW

2.1. Solid Waste, Municipal Solid Waste, and Solid Waste Management: Conceptual Clarification

Solid waste is any material that is not available in liquid form and has no value to the person responsible for it. Although human or animal excrement is often found in solid waste streams, the term "solid waste" generally does not include these materials. Synonyms for solid waste are such terms as "garbage," "trash," "refuse" and "rubbish" (Zurbrugg, 2003). On the other hand, municipal solid waste is defined as solid waste from homes, streets and public places, shops, offices, and hospitals, which often fall under the jurisdiction of municipalities or other public authorities. Solid waste emanating from industrial processes are generally not considered "municipal" waste but must be considered in solid waste treatment, as they often enter the stream of municipal solid waste. Finally, solid waste management encompasses all activities aimed at minimising the impact of solid waste on health, the environment and aesthetics (Zurbrugg, 2003). This includes activities related to cleaning and maintaining household compounds, neighbourhoods, streets and public places (Park, 2011).

2.2. Overview of National Sanitation Day Programme

Solid waste management is an important aspect of sustainable development for each country, and global initiatives support priority setting for solid waste management. Global efforts of maintaining environmental quality are linked to sustainable development and are now being proposed by governments and international organisations (United Nations Development Programme, 2007). A clean environment and effective waste management systems, for example, are among the United Nations Sustainable Development Goals (SDGs). The SDGs indirectly support the sustainable management of solid waste within the framework of environmental sustainability objective six. The aim is to promote the integration of sustainable development principles into the development policies and programmes of each country (United Nations Development Programme, 2007). In September 2010, a revised Environmental Sanitation Policy was produced for Ghana. The overall goal of this new policy is to develop a clean and nationally accepted vision of environmental sanitation as an essential social service and a major determinant for improving the health and quality of life in the country. The policy is a necessary tool required for helping shape all efforts in dealing with the overwhelming challenges of poor sanitation in the country (Yeboah, 2015). Consistent with initiatives in Cameroon, Nigeria, Sierra Leone and Liberia that aim to involve citizen volunteers in the cleaning of communities, homes, and streets, the NSD was introduced by Ghana (Monney, 2015).

The NSD is an initiative launched by the Ministry of Local Government and Rural Development (MLGRD) in the last quarter of 2014 for implementing clean-up exercises across the country in order to deal with the cholera outbreaks in Ghana (Myjoyonline, 2016).

In June 2014, an outbreak of cholera was reported in Ghana. On 18 August, 6,018 cases were reported, including 47 deaths (0.9 percent fatality rate) in 34 districts in five regions. The most affected region was the Accra Metropolitan Area, where 5,558 cases and 45 deaths were recorded. As the number of cases increased, Ghana Health Service turned to the Red Cross for help (Relief Web, 2014). By early September, the number of cases had exceeded 15,000, of which 126 were fatal. By 19 October, a total of 23,622 cases had been reported, 190 of which were fatal. The disease affected all 10 regions of Ghana (Relief Web, 2014), namely, Greater Accra, Ashanti, Brong-Ahafo, Upper West, Northern, Volta, Upper East, Eastern, Central and Western regions. The metropolitan area of Accra was the most affected, with 75 percent of cases and 60 percent of deaths (Relief Web, 2014). By the end of 2014, 28,922 cases with 247 deaths had been reported (Badoe, 2003) from 130 out of the 216 districts in all 10 regions of Ghana (Myjoyonline, 2016). Table 1 indicates the reported cholera cases and deaths in Ghana between 2010 and 2016.

In an attempt to limit the unhealthy conditions which cause diseases and other factors that lead to injuries, the government reserves the first Saturday of each month for clean-up exercises all over the country for all Ghanaians (News Ghana, 2016). The programme is part of efforts designed to encourage Ghanaians to clean their environment. The aim is to make the citizens aware of the need to keep their environment clean and tidy (Ghana News Agency, 2017). Most business activities on the day of the programme remain closed for several hours to allow people to participate in environmental cleaning activities actively. According to mayors, the programme is part of the civic responsibility of community members to clean up the environment in order to

make it safe and thus promote health (Ghana News Agency, 2017). The programme has attracted high profile personalities in the country, such as the president, vice-president, ministers of state, members of parliament, district chief executives, Otumfuo Osei Tutu II (head of the Asante kingdom), Ghana Police Service, the Ghana army and Ghana Immigration Service. All these individuals have participated in clearing garbage in some parts of the country to promote environmental cleanliness following the programme inception.

The NSD programme is intended to eliminate heaps of garbage at all refuse to dump places across the country, particularly in cities, and more importantly, to educate the public about the separation of paper, plastic and liquid waste (News Ghana, 2016). From the programme's inception until 2015, 10 major clean-up exercises were performed in all regions of the country (Gyasi, 2016). Meanwhile, a bill is currently in Ghana's parliament for approval; this bill will give legal backing to the programme and make individuals who refuse to take part in NSD activities subject to prosecution (News Ghana, 2016). According to the Deputy Minister of Local Government and Rural Development Nii Lante Vanderpuije, this has become necessary for arousing the interest of the public in participating in the programme.

Table 1: Cholera cases and deaths in Ghana in 2010-2016

Year	No. of Cases	No. of Deaths
2010	9,542	100
2011	10,628	105
2014	28,922	247
2015	962	10
2016	720	No deaths

Source: (Ministry of Health, 2014; Relief Web, 2017; Gyasi, 2016; Modern Ghana, 2017; Starrfmonline, 2016)

2.3. Sustainability in Sanitation Programmes

Improving health and protecting the environment are the objectives of water and sanitation programmes in developing countries. Such programmes enable communities to live healthier lives by improving their conditions and access to a clean environment (Ademiluyi & Odugbesan, 2008). The Overseas Development Institute describes the sustainability of water and sanitation programmes as an important concern in developing countries (ibid). Sustainability implies "the capacity of a project to continue to deliver its intended benefits over the long term" (Katz & Sara, 1997). There is no time limit set for such continued services or projects (WaterAid, 2011). Appropriate strategies for community-based water and sanitation programmes in developing countries must be based on a clear understanding of existing problems and determinants of sustainability (Carter, Tyrrel, & Howsam, 1999). In developing countries, sizable numbers of projects, including those in water supply and sanitation, fail to deliver long-term benefits to society (Antonio, 2005). One of the reasons for this failure is the lack of understanding of impacts and sustainability issues. From the point of view of Olajuyigbe (2016) and Abtahi *et al.* (2017), the lack of sustainability of water and sanitation programmes results from poor public awareness, including investments in equipment. Lumbreras and Fernández (2014) postulated that the need to improve public awareness had been widely recognised by researchers as necessary for achieving sustainability and promoting environmental citizenship among populations. A functioning programme requires a number of governance, social, financial, institutional and technical issues to be addressed. Sustainability in the sense of continuous provision and use of services is threatened by several attitudinal, economic and institutional factors, and approaches to citizen participation alone are not a guarantee of success (Carter *et al.*, 1999). The key to sustainability is that all stakeholders involved need to support and perceive the programme in their best interests to deliver high-quality services. Worku and Muchie (2012) identified some methods that cities around the world have employed. These include enforcement of sanitary regulations, promotion of education about good waste management among community members and good governance.

3. METHODOLOGY

A pure qualitative approach was adopted for achieving the research goals. Data was sourced from newspapers published by media outlets. The media houses included The Ghanaian Times, The Chronicle, Ghana News Agency, News Ghana, The Graphic, Myjoyonline, Citifmonline, Starrfmonline, Ghana Business News and so

on. The newspapers contained interviews conducted by reporters of the aforementioned media organisations with citizens/community members, the staff of waste management company (Zoomlion Ghana Limited) and so forth regarding their views and opinions with respect to the NSD. Reporters are stationed at various communities, including public places, to give a vivid description of events taking place. The newspapers also contained speeches of the Local Government and Rural Development Minister, the Deputy Minister of Local Government and Rural Development and district chief executives. Moreover, the study used interviews with key informants (experts who have knowledge of a particular field) within civil society organisations who advocate environmental sustainability and perform activities related to sanitation. Purposive sampling was used for selecting the informants because the researchers believed that the study needed individuals who are well experienced and have information within the sphere of environmental sanitation. Five informants were interviewed, and their interviews were deemed the primary source of data by the researchers. Finally, the data collected was carefully analysed and augmented with secondary sources obtained from a review of the literature. In a nutshell, the specific aim of the paper was to combine these sources (newspaper articles and other commentaries) in a publishable form to highlight the challenges bedevilling the NSD programme and then offer recommendations where necessary towards sustainability, given the lack of thorough academic study on this issue.

4. ANALYSING NSD PROGRAMME CHALLENGES IN GHANA

The following were identified during the newspaper review and key informant interviews as some of the challenges facing the NSD programme. These cover logistical challenges, politicisation, inferior publicity and poor enforcement of by-laws.

4.1. *Inadequate Logistics* - Olajuyigbe (2016), Bortoleto and Hanaki (2007) and Abtahi *et al.* (2017) underscored the importance of the availability of adequate logistical services towards the sustainability of sanitation programmes. Interviews with key informants emphasised the usefulness of waste container bins, wheelbarrows, and shovels for the clearing of choked drains coupled with refuse collection. The absence of such facilities and related tools presents dire consequences for sanitation management programmes (in this context, NSD) and slows down citizens' participation in garbage collection, disposal, and segregation. *"You cannot make any meaningful progress of the NSD programme without the required tools. They are very instrumental in the collection and disposal of garbage and even segregation. This could keep the programme running"*. People are considering participating in the activities only to realise that there are no tools for mass collection and disposal of waste (Myjoyonline, 2016). In some places in the regional capital Accra, piles of garbage are commonly seen even on the day of the programme. Some residents complain about the fact that waste is being left on the sides of streets uncollected when they clean the gutters, thereby causing the waste to eventually be placed back in the gutters (Effah, 2016). Therefore, there is no apparent incentive to further participating in this clean-up exercise. Ghanaian Times, a national newspaper, reported that some youth clubs in the country, before actively participating in the programme, have appealed to authorities responsible for waste management to provide containers for waste collection (Ghanaian Times, 2014). Lack of adequate facilities for disposing of collected refuse in communities, streets, and other public places have caused people to behave negatively towards the programme. *"A programme like this kind you need a staggering number of containers to encourage more participation. Without such facilities, participation could definitely go down and adversely impact on the programme"*. Studies have reiterated the point that waste that remains unattended scatter and block drains, leading to flooding. This probably explains the constant flooding in the cities of Ghana (Ghana Web, 2016). On 3 June 2015, for example, 154 people lost their lives in devastating floods in Accra. One of the causes of this catastrophe was the poor management of waste, which manifested in the form of blocked gutters. According to Samwine *et al.* (2017), the provision of solid waste collection facilities is the responsibility of the central government. In developing countries, including Ghana, efforts focus primarily on collection and disposal, but no facilities are provided (Manga, Forton, and Read, 2008; Samwine *et al.*, 2017). This form of management is due to poor governance (Manga *et al.*, 2008; Kazungu, 2010; Thompson, 2010).

4.2. *Politicisations* - Given the laudable nature of the NSD programme rolled out by then-President John Dramani Mahama to protect the country from being riddled by diseases and embarrassments among the international community, and it has been politicised. According to Communication Manager of Zoomlion, a

waste management company in Ghana, the NSD has been politicised to the extent that people refuse to participate in the programme if they perceive the assembly member or the member of parliament of a particular area where the exercise is being held to belong to an opposing political party (Yagbon, 2016). Cronies of opposing political parties refuse to actively participate lest their excellent work is attributed to the ruling party and thus enhance the latter's chances in subsequent elections. Furthermore, political parties, in particular, the main opposition and their followers saw the NSD programme as a platform used by the ruling party to galvanise political support in the forthcoming election. The programme is also perceived by the main opposition party as a platform employed by the ruling party for projecting its image and that of the president, the vice president or any other person within the ruling party who could become presidential candidates in the eyes of the public. The opposition party once regarded the programme as room for the ruling party that brought the initiative to engage in wanton dissipation of public funds. The reason for this is that the government has not been able to disclose an exact amount of money earmarked for the NSD. Conversely, supporters of the ruling party in certain parts of the country have not spared the programme from wearing party T-shirts and scarfs on the day of the programme. This could not be disputable since the goal of political parties is to seize political power. This needless politicisation could, in turn, have serious social and economic implications.

"We have politicized everything in this country. A programme that was supposed to register a huge number of citizens is being reduced to politics. Participation has gone down as you can see because they all want power. The main opposition party among the many political parties have raised several red flags about the NSD programme. They have raised issues of transparency and accountability, marketing of presidential candidate, and all that. As I just indicated, all of them are interested in the next election otherwise why would you be wearing T-shirts with the picture of the current president (ruling party) on the programme day. This programme could die out soon if this is how we continue to handle it".

This study finding is supported by that of Ishola (2018), a research study in the Oyo state of Nigeria. He asserted that the effectiveness and efficiency of efforts of the solid waste management sector are crippled and plagued by unnecessary partisan politicisation, which negatively impacts the solid waste management by stakeholders, especially by states' local governments.

4.3. *Inadequate Public Awareness* - Lack of adequate information for creating public awareness has a detrimental impact on programmes aimed at addressing waste management conundrums. By implementing such a programme on the path to sustainability, Abtahi *et al.* (2017) advocated the use of the media for raising awareness to encourage citizen participation in cleaning the environment. In corroborating this viewpoint, campaigns for raising awareness at a particular location and in a country concerned can bring about change and have a positive impact on waste management-related programmes (Zhu, Asnani, Zurbrugg, Anapolsky, & Mani, 2007). This would reduce the volume of solid waste within communities, streets, and public places. In the case of the NSD programme, however, the story is quite different. Increasing public awareness, as a means of changing the behaviour of people to ensure environmental hygiene, is largely neglected by authorities (Monney, 2015). The failure of some residents to participate in the clean-up exercise is due to the poor level of public education provided for sensitising the public. Others contend that the clean-up exercise is the responsibility of the waste management organisation Zoomlion Ghana, which is paid for the implementation of this task (The Graphic, 2016). In some local areas, residents forget about the exercise and attribute it to the low level of sensitisation and awareness (Yagbon, 2016). Our interactions with the informants revealed that the collaboration between the MLGRD; metropolitan, municipal and district assemblies (MMDAs), the media and traditional authorities, among others, is weak in helping create awareness and proper waste management for the public to participate in the exercise. In the view of Mmerekí (2016), it is not easy to maintain a successful programme without effective collaboration between interested parties, such as radio, television and religious leaders. *"We have very good programmes in this country and National Sanitation Day is among one of them. The success of a programme depends on cooperation with the media and other stakeholders to inform the public. In the case of our programme, the National Sanitation Day, such cooperation is very poor"*. According to Monney (2015), in Ghana, education on sanitation and hygiene on electronic media generally only happens when there are cases of

disease outbreaks. He further added that after outbreak cases, the airwaves are used for the usual “political tae kwon do”¹.

4.4. *Poor enforcement of sanitation by-laws* – The poor patronage recorded for the NSD programme reflects the inability of the MMDAs to enact and implement by-laws that would reduce the low patronage witnessed over some periods during the exercise (The Graphic, 2016). Speaking in an interview with Ghana News Agency, some police superintendents explained that the lack of laws that prosecute offenders who do not honour the NSD contributes to low turnout (Modern Ghana, 2016). Additionally, Ghana Business News (2018), in an interview with Julius Debra, Minister of MLGRD, explained that ‘most of the prescribed punishment in the laws are nothing to write home about. They are very old, and the fines are very minimal, and so we have to do something that will be punitive enough to reflect the current circumstances’. The cleanliness of a country's environment should be the main concern of all. Nevertheless, Ghana's by-laws on sanitation appear lenient (The Chronicle, 2014). Supporting this opinion, Yeboah (2015) argued that the current legislation on environmental sanitation in Ghana is superfluous, as no measures have been taken against culprits for years. In countries such as the United States of America and Sweden, the strict application of sanitary by-laws helps solve the major waste problems in cities (Caplan, Grijalva, & Jakus, 2002). This can equally be replicated in Ghana as far as the sanitation programme is concerned, but delays in the release of the District Assembly Common Fund (DACF) by the central government, aside from the inability of the MMDAs to generate adequate revenue at the local level, are preventing them from fully implementing municipal by-laws. *“Metropolitan, Municipal and District Assemblies (MMDAs) in addition to their local revenues get support from the government to undertake their activities, but the difficulty here is that government delays in releasing these MMDAs common funds.”*

5. CONCLUSION AND RECOMMENDATIONS

The study analysed the NSD programme of Ghana, where sanitation is a serious problem. It can be argued from the statistics presented in Table 1 that the NSD programme is a good initiative and must be pursued until sanitation-related diseases, such as cholera, and other problems caused by poor sanitation are a thing of the past. The programme nonetheless is characterised by many challenges. According to the analysis, these challenges include inadequate logistics, politicisation, inferior publicity and poor enforcement of by-laws. These contribute to increasing public apathy, which makes achieving programme sustainability difficult. Addressing one of the identified challenges without solving the others can still undermine the success story of the NSD programme. It is therefore essential to take into account and address all challenges. Against this backdrop, the following recommendations for sustaining the programme are proposed.

- The government should ensure an adequate supply of waste receptacles in order to ensure proper management of waste and thus effectively sustain the programme. This will increase citizen participation and speed up in the clearing of clogged drains and collection of refuse on the streets, among others.
- Politicians should delink the NSD programme, which aims to prevent environmental hazards and protect Ghanaians from diseases, from purely party-political lenses and recognise it as a national development programme. They should also hold serious talks with their supporters and make it clear to them that the programme has no connection with one's political leanings.
- The MLGRD and MMDAs should collaborate effectively with media organisations to raise public awareness about the consequences of poor environmental quality and the need for their active involvement. In addition, they should request religious leaders to use their pulpits to disseminate information and raise awareness. The MLGRD and MMDAs should do the same for traditional leaders, as they have clout and command high respect in society. Their offices could be a source for propagating information to their followers under their respective jurisdictions. This will lead to greater participation of citizens.
- District assemblies should enforce their by-laws even in the absence of a sanitation day law to ensure maximum participation. The central government must demonstrate its commitment to the timely and

¹ ‘Tae kwon do,’ similar to ‘karate,’ is a sport; it originated from Korea and involved people fighting with their arms, legs, and feet. <http://dictionary.cambridge.org/dictionary/english/tae-kwon-do>.

immediate release of DACF to enable local assemblies to acquire facilities necessary for the implementation of by-laws.

ACKNOWLEDGEMENT

The authors would like to extend thanks to the Chinese Scholarship Council (CSC) for the scholarship awarded to the authors to study at the University of Science and Technology of China.

References

- Abalo, E. M., Peprah, P., Nyonyo, J., Ampomah-Sarpong, R., & Agyemang-Duah, W. (2018). A Review of the Triple Gains of Waste and the Way Forward for Ghana. *Journal of Renewable Energy*, 2018.
- Abtahi, M., Saeedi, R., Boroojerdi, M. N., Fakhraeefar, A., Bayat, A., Mokari, S., ... & Alizadeh, M. (2017). Public awareness, education and participation in solid waste management in Tehran. *Journal of Health in the Field*, 3(2).
- Ademiluyi, I. A., & Odugbesan, J. A. (2008). Sustainability and impact of community water supply and sanitation programmes in Nigeria: An overview. *African Journal of Agricultural Research*, 3(12), 811-817.
- Agarwal, R., Chaudhary, M., & Singh, J. (2015). Waste Management Initiatives in India for Human Well Being. *European Scientific Journal, ESJ*, 11(10).
- Amoah, S. T., & Kosoe, E. A. (2014). Solid waste management in urban areas of Ghana: issues and experiences from Wa. *Journal of Environment Pollution and Human Health*, Vol. 2, No. 5, 110-117.
- Antonio, G. F. (2005). The European response to the challenges of Water and Sanitation in Developing Countries. *TRIBUNE, the document of European Commission*.
- Badoe, C. (2014). The challenges of waste management in Ghana: EPA's perspective. <https://www.todaygh.com/challenges-waste-management-ghana-epas-perspective/> (Accessed date: 2017.08.25).
- Boadi, K. O., & Kuitunen, M. (2003). Municipal solid waste management in the Accra Metropolitan Area, Ghana. *Environmentalist*, 23(3), 211-218.
- Bortoleto, A. P., & Hanaki, K. (2007). Report: Citizen participation as a part of integrated solid waste management: Porto Alegre case. *Waste Management & Research*, 25(3), 276-282.
- Caplan, A. J., Grijalva, T. C., & Jakus, P. M. (2002). Waste not or want not? A contingent ranking analysis of curbside waste disposal options. *Ecological Economics*, 43(2-3), 185-197.
- Carter, R. C., Tyrrel, S. F., & Howsam, P. (1999). The impact and sustainability of community water supply and sanitation programmes in developing countries. *Water and Environment Journal*, 13(4), 292-296.
- Effah, E. (2016). National Sanitation Day Exercise Records Low Patronage. <https://yen.com.gh/30695-national-sanitation-day-exercise-records-low-patronage.html>. (Accessed date 2018.09.10).
- Ejaz, N., Akhtar, N., Hashmi, H., & Naeem, U. A. (2010). Environmental impacts of improper solid waste management in developing countries: A case study of Rawalpindi city. *The sustainable world*, 142, 379-387.
- Ghana Business News (2018). How the National Sanitation Day started, 2014, Retrieved 19 April 2018, from <https://www.ghanabusinessnews.com/2014/12/18/how-the-national-sanitation-daystarted/>
- Ghana News Agency (2017). AMA reminds residents of the National Sanitation Day exercise check source, 2017, <https://www.ghanaweb.com/GhanaHomePage/economy/AMA-remindsresidents-of-the-National-Sanitation-Day-exercise-566012>. (Date of accessed 2018.06.19).
- Ghana Web (2016). June 3 disaster: Family disputes delaying compensation—MP <https://www.ghanaweb.com/GhanaHomePage/NewsArchive/June-3-disaster-Family-disputesdelaying-compensation-MP-444940>. (Accessed date 2018.08.10).
- Ghanaian Times (2014). National Sanitation Day Observed with mixed-Reactions. <http://www.ghanaiantimes.com.gh/national-sanitation-day-observed-with-mixed-reactions/>. (Accessed date 2018.09.10).
- Gyasi, A. A. (2016). *Public Response to the National Sanitation Day Campaign: A Survey of Madina Residents* (Master dissertation, University of Ghana), Ghana.
- Hoorweg, D., & Bhada-Tata, P. (2012). What a waste: a global review of solid waste management. Washington DC: World Bank
- Ishola, A. (2018). The Politics of Solid Waste Management in Selected Local Governments of Oyo State. <https://www.ipsa.org/events/congress/wc2018/paper/politics-solid-waste-management-selected-local-governments-oyo-state>.
- Katz, T., & Sara, J. (1997). *Making rural water supply sustainable: Recommendations from a global study*. The World Bank.

- Kazungu, R. K. (2010). Improving governance for sustainable waste management in Nairobi. In *46th ISOCARP Congress* (pp. 1-8).
- Kocasoy, G. (2000). Solid waste management in developing countries—a case study of Turkey. In *Sustainable Solid Waste Management in the Southern Black Sea Region* (pp. 47-68). Springer, Dordrecht.
- Lumbreras Martín, J., & Fernández García, L. (2014). Comprehensive solid waste management: The Ciudad Saludable model in Peru. <http://idbdocs.iadb.org/wsdocs/getDocument.aspx?DOCNUM=39168981>
- Manga, V. E., Forton, O. T., & Read, A. D. (2008). Waste management in Cameroon: A new policy perspective? *Resources, conservation, and recycling*, 52(4), 592-600.
- Ministry of Health (2014). Holistic Assessment of the Health Sector Programme of Work, Accra, Ghana.
- Mmereki, D., Baldwin, A., & Li, B. (2016). A comparative analysis of solid waste management in developed, developing and lesser developed countries. *Environmental Technology Reviews*, 5(1), 120-141.
- Modern Ghana (2016). Low publicity affects National Sanitation Day in Nkrakwanta. <https://www.modernghana.com/news/679006/low-publicity-affects-national-sanitation-day-innkrakwanta.html>. (Accessed date 2018.11.02).
- Modern Ghana (2017). 720 Cholera Cases Recorded In 2016 <https://www.modernghana.com/news/751310/720-cholera-cases-recorded-in-2016.html>. (2018.08.05).
- Monney, I. (2015). National Sanitation Day: Is it another knee-jerk reaction to Ghana's sanitation issues? 2015, http://www.academia.edu/10056383/National_Sanitation_Day_Is_it_another_knee-jerk_reaction_to_Ghanas_sanitation_issues (Accessed date: 2018.08.06).
- Myjoyonline (2016). Abolish the National Sanitation Day Exercise—CONIWAS. <http://www.modernghana.com/news/678715/abolish-the-national-sanitation-day-exercise-coniwas.html>. (Accessed date: 2018.08.06).
- News Ghana (2016). Needless Politics Killing National Sanitation Day Spirit—Coleman. <https://www.newsghana.com.gh/needless-politics-killing-national-sanitation-day-spirit-coleman/> (2018.08.06).
- Okpala, D. C. (1999). Upgrading slum and squatter settlements in developing countries: is there a cost-effective alternative? *Third World Planning Review*, 21(1), 1.
- Olajuyigbe, A. E. (2016). Community Participation and Sustainability Issue: An Evaluation of a Donor-Driven Water Sector in Ikaram Millennium Village Project, Nigeria. *Open Journal of Social Sciences*, 4(06), 90.
- Onibokun, A. G. (Ed.). (1999). *Managing the monster: urban waste and governance in Africa*. Idr. Ottawa, Canada
- Park, J.E. (2011). Textbook of Preventive and Social Medicine, 21st Edition, Bhanot Publishers, India.
- Relief Web (2014). Ghana: Cholera Outbreak—Aug2014. Available <https://reliefweb.int/disaster/ep-2014-000116-gha>. (2018.08.06).
- Relief Web (2017). A Race Against Time: Responding to Cholera Outbreaks in Ghana. <https://reliefweb.int/report/ghana/race-against-time-responding-cholera-outbreaks-ghana> (Date of accessed 2018.08.05).
- Sam Jr, P. A. (2002). Are the municipal solid waste management practices causing flooding during the rainy season in Accra, Ghana, West Africa. *African Journal of Environmental Assessment and Management*, 4(2), 56-62.
- Samwine, T., Wu, P., Xu, L., Shen, Y., Appiah, E., & Yaoqi, W. (2017). Challenges and Prospects of Solid Waste Management in Ghana. *International Journal of Environmental Monitoring and Analysis*, 5(4), 96.
- Starrfmonline (2016). NDC shakes Hohoe with health walk <http://starrfmonline.com/1.8770268>. (2018.06.15).
- The Chronicle (2014). Great call on sanitation but... Retrieved 07 June 2018 <http://thechronicle.com.gh/great-call-on-sanitation-but/>.
- The Graphic (2016). National Sanitation Day: Accra records high turnout as other regions report low patronage. <http://www.graphic.com.gh/news/general-news/national-sanitation-dayaccra-records-high-turnout-as-other-regions-report-low-patronage.html>. (Accessed date 2018.11.09).
- Thompson, I. A. (2010). Domestic waste management strategies in Accra, Ghana and other urban cities in tropical developing nations. *Cleveland: Case Western Reserve University*.
- United Nations Development Programme (2007). United Nations Millennium Development Goals United Nations Development Programme. Available at <http://www.undp.org/mdg/>. (Accessed date: 2018.06.20).
- WaterAid (2011). The Sanitation Problem: What can, and should the health sector do? <https://www.wateraid.org/~media/publications/sanitation-problem-health-sector.pdf> (2018.11.01).
- Worku, Y., & Muchie, M. (2012). An attempt at quantifying factors that affect efficiency in the management of solid waste produced by commercial businesses in the city of Tshwane, South Africa. *Journal of environmental and public health*, 1-12
- Yagbon Radio (2016). Politics Killing National Sanitation Day—Coleman. Available at: <http://www.yagbonradio.com/2016/04/09/politics-killing-national-sanitation-day-coleman/>. (Accessed date 2018.10.10).
- Yeboah, M.M. (2015). The Overall Goal of the National Sanitation Bill. <https://www.newsghana.com.gh/overall-goal-national-sanitation-bill/> (Accessed date: 2018.06.20).

- Zhu, D., Asnani, P. U., Zurbrugg, C., Anapolsky, S., & Mani, S. K. (2007). *Improving municipal solid waste management in India: A sourcebook for policymakers and practitioners*. The World Bank.
- Zurbrugg, C. (2003). Solid waste management in developing countries. *SWM introductory text on www. sanicon.net*, 5.