Research Article

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Public compliance with environmental sanitation regulations in Ghana

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Abstract: Due to the negative impacts of poor environmental sanitation (ES) on the environment, economy, public health, and livelihoods, various efforts are constantly being made in countries all over the world, particularly by their governments, to regulate public behaviour to conform to acceptable sanitation standards. However, public compliance with sanitation regulations is low in Ghana, culminating in the lowering of the country's international image in recent years as far as sanitation is concerned. The study examined the phenomenon of low public compliance with ES regulations in Ghana. Qualitative data were collected from purposively selected experts and key informants in ES management, using in-depth interviews. Data were analysed using the thematic technique. The findings revealed that the low compliance phenomenon was due to ineffective law enforcement, inadequate public education and sanitation infrastructure, low capacity of implementing institutions, lenient penalties, and poor sanitation culture. Compliance management seemed linear in theory, as it appeared the government could simply compel everyone to comply; but in practice, it was a complex problem that required a multi-dimensional solution. The government and its implementing agencies should commit to strict law enforcement, provide adequate ES facilities, undertake intensive public education on sanitation, provide adequate funding, and build

the capacity of the implementing institutions to enforce compliance. There was the need to strategically combine coercive and catalytic approaches to ensure compliance with the regulations. The study contributes to achieving Sustainable Development Goal 6 — access to water, sanitation, and hygiene — in Ghana.

Keywords: public compliance, law enforcement, environmental sanitation, sustainable development, sanitation regulations

1 Introduction

The complexities of environmental sanitation (ES) management and the negative effects of poor ES on the economy, environment, human health, and livelihoods engender concerns about the enforcement of and compliance with ES regulations world-wide. Improper ES results in economic losses, leading to poor economic growth and development. Pollution resulting from improper disposal and defecation practices affects water resources, quality of air, and the ecosystem. Poor ES causes diseases and is a leading cause of child mortality, morbidity, and stunting, and has potentially negative effects on cognitive development. Sanitation can be a barrier to education and economic opportunity, with women, girls, and children bearing the greatest brunt of these. The multiple adverse effects of poor ES justify why and how Sustainable Development Goal (SDG) 6 is crucial to achieving many other SDGs, including those related to nutrition, health, education, poverty, and gender equality [1]. Hence, the compelling need to curb improper ES practices cannot be denied.

UNICEF [1] indicates that to successfully combat poor ES — especially unapproved defecation practices — in the world, at least 60 million people need to stop the practice each year between 2015 and 2030. Several efforts are being made at the global and local levels to combat poor sanitation and its effects on sustainable development (SD). One of the most critical efforts in this direction is the applica-

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tion of laws to control the phenomenon. Governments in both developed and developing countries consider law as a critical instrument in bringing about the desired sanitation behaviour change. In consonance with global best practices, Ghana, a developing country in West Africa, has put in place sanitation policies and laws in an attempt to combat the sanitation menace, as the menace has resulted in the country being rated as one of the dirtiest in the world in recent years [2].

However, it has been observed that the level of public compliance with the ES regulations in Ghana is low, leading to a myriad of environmental, health, and livelihood challenges [3]. This makes it imperative to investigate the phenomenon of low public compliance with sanitation regulations in the country. Scholarly attention has focused more on advancing plausible theoretical arguments regarding compliance with the ES regulations rather than adducing empirical evidence for managing compliance. As a result, there is little by way of empirical evidence that can inform policies and measures that are most likely to improve public compliance to achieve the country's sanitation goals and targets for SD. Against this backdrop, the objective of the study was to explore the causes of low public compliance with ES regulations in Ghana and how compliance could be improved. The research questions that guided the study were: (a) What are the causes of low compliance with sanitation laws in Ghana? (b) How can compliance with the laws be improved to ensure the maintenance of acceptable sanitation standards in the country? The study was worthwhile because the findings and recommendations could help policymakers and sanitation managers to increase compliance with the sanitation laws for improved environmental and public health for SD.

1.1 Theoretical underpinnings

Laws are rules that are enforced through social institutions to govern human behaviour. Laws are important because they act as guidelines for what is accepted or not accepted in society. ES management laws, like any other laws, are meant to be complied with. If they are not complied with, then their usefulness or essence is defeated because the purpose of their enactment cannot be said to be achieved. Apart from its enactment, two main issues that are important for the law to work, are enforcement and compliance [4]. Law scholars and researchers [5–7] maintain that enforcement and compliance, as concepts, are related but different in meaning. While enforcement refers to the process of taking action to induce, encourage, compel, or

exact compliance with regulations, compliance relates to conformity with the regulations [8,9]. Technically, when compliance is effectively enforced, enforcement is likely to be complied with. Regulatory compliance is variously defined and explained in the regulation literature, but common to most of the definitions and explanations is that the concept can be seen as a process and/or an event. This means it can occur either as instant conformity, or take a long time to happen [10].

Compliance is influenced by many contextual factors as articulated by various scholars, using various theories to explain when and how it can happen. On the one hand, the managerial school argues that non-compliance results from ambiguity in the regulation, ignorance, and administrative bottlenecks [11]. On the other hand, the constructivists maintain that actors can be socialised to comply because they cherish esteem through compliance, and abhor the ostracism associated with non-compliance [12], as cited in Findley *et al.* [13] (p. 148). Similar to the constructivists' theoretical perspective, the rationalist school holds that compliance results from concerns about fame, image, or reputation [4,6].

The view is also held that compliance is based on commitment. These include commitment due to deterrence, remuneration, cooperation, and morals (also called normative) [14]. Commitment anchored on deterrence and remuneration is utilitarian and egotistical as the regulated obeys or disobeys the law after weighing the costs and benefits of compliance. This supports the economic theory of cost and benefit, which holds that the motivation for compliance or non-compliance is the minimization of costs or the maximization of gains [15]. The deterrence-based commitment argument is that the best way to improve compliance is to punish people for infractions. This is coercive as it assumes that people are not motivated to comply, therefore, they must be compelled to do so through the application of sanctions. It works when the regulated view the penalty avoided by complying with the law as too severe. Remuneration-propelled commitments are also influenced by utilitarian factors. In this regard, more emphasis is placed on incentives for compliance than sanctions for non-compliance [16,17]. The approach is catalytic and assumes that people are motivated to comply, but they are not able to do so because they possibly do not know or understand what should be done. This suggests the willingness to comply is insufficient unless individuals are aware of the need to be compliant and are able to carry out what is necessary [18]. But it is argued that it is not easy to apply the appropriate reward to induce the desired behaviour [19]. In the view of Kagan *et al.* [5], if the regulated entities are motivated to comply, catalytic actions are suf-

ficient to make them comply; but if they are not motivated to do so, coercion might be necessary to ensure compliance. Catalytic actions should be used when cooperation is encountered and coercive actions should be used when the opposition is encountered [20–22].

Due to the limitations of the strict deterrence and remunerative commitment, approaches that seek to enhance commitment based on social and ethical factors have been developed as variants of the approaches. From these perspectives, the effectiveness of sanctions stems from the social disapproval that an unapproved behaviour attracts [23,24]. It is also argued that the enforcement regime can foster social commitment through incentives for compliant behaviour, such as providing public awards for outstanding behaviour and building positive relationships between regulators and the regulated based on mutual understanding and respect. Finally, normative factors also foster compliance. This is a moral commitment that emanates from the internal values of the regulated. In this regard, the actors comply because they agree with the goals of the regulations and subscribe to the societal norms of good citizenship and lawful behaviour. The limitation is that it may work only with the regulated who care about norms of good citizenship [25]. Others [26–28] see transparency and accountability as pre-requisites for the effective management of law enforcement leading to

compliance. This implies that the enforcement authorities should be independent and impartial, while offenders are provided the opportunity to have access to justice.

2 Materials and methods

The study adopted the qualitative research method in order to gather detailed information about the issues at stake. Data were collected from purposively targeted experts and key informants as provided in Table 1. It sought the views of experts and key informants on compliance with ES regulations in Ghana. Apart from the traditional authorities who were key informants, the rest were experts in various aspects of ES management and/or law. The reasons for their inclusion are provided in Table 1. The Environmental Health Officers (EHOs) were from the Ministry of Local Government and Rural Development (MLGRD), Ministry of Water and Sanitation (MWS), and Metropolitan, Municipal, and District Assemblies (MMDAs). The policeman was a retired Chief Superintendent of police, while the researcher was a University lecturer (professor). The lawyer was a private legal practitioner, while the Member of Parliament (MP) was a former MP for a constituency in the Republic of Ghana. The traditional authorities were a

Table 1: Respondents and justifications for their involvement as participants

Respondents	Sex			Justification for being targeted and included as participants
	Male	Female	Total	
Environmental Health Officers (EHOs)	3	0	3	Involvement in the development and implementation of ES policy and by-laws in Ghana
Policeman	1	0	1	Involvement in the effect of arrest and prosecution of a sanitation offender, if the offender proves difficult
Lawyer	1	0	1	Expert in law and its operations
Member of Parliament (MP)	1	0	1	Parliamentary knowledge and experience in lawmaking
Lecturer/Researcher	1	0	1	Academic knowledge and research experience in ES management at household and community levels
Traditional Authority	1	1	2	Traditional knowledge and experience in ES management, particularly at the community level
Zoomlion Staff	1	1	2	Private urban sanitation management and practical knowledge in ES management
Total	9	2	11	Not applicable

prominent traditional chief and a respected queen-mother in two different communities in Ghana.

The respondents were purposively chosen and were reached mainly through snowballing. In-depth interview guides were designed and used for the study. The items in the instruments revolved around perspectives about the level of compliance with sanitation laws, causes of low public compliance with the laws, and how public compliance could be increased to ensure improved sanitation for better human health and environmental sustainability. The respondents were informed of the purpose and objective of the study and the use that would be made of the data being collected from them. They were assured of confidentiality and anonymity before the start of each interview. The respondents were informed of their right to withdraw from the study anytime in the course of the interview. Interviewees gave their explicit consent to being interviewed and audio-recorded. A combination of face-to-face and phone interviews was used. Written consent of respondents was obtained from those who were interviewed face-to-face, while those who were interviewed via phone gave their verbal consent before the start of the interview. Generally, each interview lasted between 38 and 67 minutes. Data were collected between March and August, 2017 by three researchers. The different categories of the study participants enabled the principle of triangulation to be followed. Saturation is commonly taken to indicate that on the basis of the data that have been collected or analysed hitherto, further data collection and/or analysis are unnecessary [29,30]. Data saturation was reached when no new information on the major themes was emerging from additional interviews. It must be noted that three law court judges who were contacted for purposes of data collection on the prosecution of ES cases declined to participate. However, the lawyer and two of the EHOs who had been involved in the prosecution of ES cases at the law court were able to provide useful data and information in that regard.

Data were transcribed and analysed manually. Analyses of the data were based on opening coding, axial coding, and thematic analysis, as described by Braun and Clarke [29] and Fusch and Ness [30]. Disagreements over the coding and all other aspects of the analysis were discussed among the researchers and resolved. The data were anonymised to make sure neither the respondents nor other people they referred to in the interview could not be identified. That is, the interview transcripts contained no information that would allow anyone to link the data to the responses of the interviewee. The findings were presented in the narrative mode guided by the most significant stories told by the participants. These were

supported with direct quotes of illustrative and emphatic significance from the participants.

3 Findings and discussions

As expressed in the introduction and the methods sections, the study sought to answer two main questions, namely reasons for low compliance with ES laws, and how to improve public compliance with the laws. Guided by these, the results and discussions are presented under two main broad sub-headings — reasons for low compliance with the regulations and improving public compliance with the laws.

3.1 Reasons for low public compliance with the regulations

To help to proffer appropriate solutions to the challenges of compliance, there was the need to identify and examine the causes of the phenomenon of low compliance with the regulations. However, before the causes were identified, the respondents were asked about their perception of the level of public compliance with sanitation laws in Ghana. Eight out of the eleven respondents indicated that the level was low, while three said it was relatively low. However, all the respondents agreed that the level of compliance needed to be improved. They were then asked to give their perspectives on the causes of low compliance with sanitation laws in Ghana. Seven out of the eleven respondents shared the view that a section of the public did not comply with some of the ES regulations because they were ignorant about the laws. These respondents indicated that some landlords and tenants were not aware of the bye-law on the mandatory provision of a toilet in the house, therefore, they considered the provision of a toilet in their houses as optional. Besides, due to the availability of public toilets, many landlords did not bother to construct a toilet in their houses. According to the respondents, many landlords and tenants thought public toilets were meant for public use and it was the responsibility of the government to provide them. One of the respondents reported as follows:

From my research, many landlords, tenants, and members of the general public are unaware of the by-laws requiring landlords to provide household or compound toilets so they (landlords) do not feel obliged to construct a toilet for the residents of the house. Most tenants do not insist that their landlords provide the facility in the house because they (tenants) do not know the

by-laws. For the tenants who know the by-laws, fear of eviction from their rented houses and the cumbersome reporting mechanisms prevent them from complaining to the appropriate authorities about the unavailability of a toilet in the house. In the poor communities, they are content with the public toilet, which they think, is the responsibility of the government to provide for them. They do not know that the public toilets are constructed primarily to serve the people in transit and not the residents. (Lecturer/researcher)

This finding supports WSUP's [31] finding regarding smart enforcement of sanitation laws in Ghana. Specifically, WSUP found that most residents in low-income urban areas continue to rely on public toilets. The Local Government Act of Ghana (Act 462) includes by-laws requiring landlords to provide toilets for their tenants, with associated penalties for defaulters. According to WSUP [31], the by-laws give local authorities the power to fine landlords or to bring them to court, but prosecuting all those currently contravening the laws would be costly, and the enforcement process is too slow to produce the desired results. Further to this, the lawyer said: the Criminal Code of Ghana, 1960 (Act 29) enjoined residents to take responsibility for the streets in front of their premises, but most people were unaware about this regulation. All the three EHOs confirmed the lawyer's report, indicating that the by-laws provide that owners of premises shall provide a sanitary standard place of convenience for the use of the occupants of the premises. Again an owner or occupier of a premise is responsible, per the specifications provided by the Assembly, for the provision of receptacles for the storage of their solid waste within their premise(s).

According to the EHOs, by the by-laws, it was an offence for landlords to fail to keep the drains that abut their premise up to the middle of the street, clean, but many people did not know these in Ghana. Therefore, some people who lived close to the street or had their stores, workshops, or kiosks close to the street even took part in littering the part of the street that was close to them. Their thinking was that the street was for the government, therefore, it was the government that should be responsible for cleaning all streets and gutters/drains in towns, including those close to their premises. This aligned with the finding by Mensah [14] that many residents in Ghana were unaware of the provision in Ghana's sanitation regulation that enjoined people living close to the street to be responsible for the cleanliness of part of the street abutted their houses.

The piece of evidence concerning the ignorance of the law as a factor of low compliance with the ES laws was consistent with the theoretical argument by the managerial school [32] that non-compliance with laws could result

from ignorance, ambiguities in regulations, and administrative shortcomings, as opposed to deliberate attempts to disobey regulations. Lee [24] reported that people who had better information on specific regulatory requirements and the means to achieve them were more likely to comply with the regulations. It was also in consonance with Checkel [12] that the regulated community may not know or understand what is required for compliance. All these lent credence to the argument that a section of the public did not comply with ES law because they did not have adequate information about the ES laws or regulations. The evidence further suggested that providing the necessary information to the regulated public could help to increase compliance.

Two out of the three EHOs reported that the main reasons for the low compliance were the bottlenecks in the enforcement processes. The bottlenecks were: inadequate funds for the institutions mandated to enforce the by-laws, low motivation and incentives for EHOs and prosecutors to follow up the cases for prosecution, inadequate prosecutors and low capacity of some prosecutors, political interference in enforcement processes, and lenient penalties meted out to offenders. Several other researchers, including [33–35] made similar findings regarding compliance with ES regulation in developing countries.

In the words of a Zoomlion staff, which were accentuated by the former MP, in many cases offenders went unpunished for breaching ES laws so other people were not deterred. In other cases, punishments meted out to offenders were not severe enough to serve as a deterrent to the offenders and others. To the policeman, the issue was rather the slow process of prosecution due to the courts being inundated with too many cases. According to the policeman:

The courts have too many cases to handle so they do not have much time for sanitation cases. In Ghana, people are quick to accuse the police of being corrupt but are slow to talk about delays in the prosecution of cases including the sanitation-related ones. If offenders are not prosecuted as fast as possible, it is problematic because justice delayed is not only justice denied, but also has implications for compliance with the laws.

Similarly, Etemire and Uwoh Sobere [36] found that the low level of compliance with sanitation laws in Nigeria was due to a slow prosecution system at the law courts. That is, the courts were unable to deal quickly and expeditiously with alleged breaches of ES law because they had too many other cases to deal with. By implication, for the ES laws to attract the desired level of compliance, they needed to be supported by effective prosecution mechanisms that were not only transparent and fair but also fast.

The evidence suggested that a major reason for weak compliance with ES laws in Ghana was the complex hurdles or challenges associated with accessing Ghanaian courts.

Seven of the 11 respondents indicated that compliance was low because the monitoring and surveillance systems were weak. Three of the seven attributed this to the lack of digitization of the system. According to the Zoomlion Officer, supported by the traditional chief and the researcher/lecturer:

...many of the sanitation offences may not be detected because they are committed undercover. People deposit solid and liquid waste, including faeces wrapped in polythene bags into the gutters and other unapproved spaces in the night without being noticed. If CCT cameras are installed at vantage points these unapproved behaviours and practices will not pass undetected. In developed countries, people would dare not do this because no matter how and when it is done, it will be detected due to advanced technology. Once detected, sanctions will be applied but the opposite is the case in Ghana where the offence may not be detected, or when detected, there is no guarantee that sanctions will be applied...

This accords with the observations by Daramola [37] that unlawful activities could go undetected when and where only a simple manual approach is used in detecting non-compliance with the laws. Therefore, Daramola [37] recommends the use of the new generation compliance systems using new technological tools — such as satellite data and remote sensing, electronic reporting, and data analytics — that allow regulators to detect violations more readily. The evidence also suggests compliance was low due to ineffective monitoring and surveillance mechanisms, which the public exploited to their advantage. This was in consonance with the rationalists' compliance theory's identification of key propelling factors of compliance as including the speed, certainty, and severity of sanctions applied by the regulator. The theory also asserts that managing compliance through the deterrence approach requires surveillance so that the regulated know that violations will certainly be detected and severely punished [38,39]. In addition, the theory argues that people will be deterred from criminal acts if the punishment for committing the act follows the delinquent act with certainty and without delay.

Additionally, all the respondents attributed the phenomenon of low compliance to the poor sanitation culture of the average Ghanaian citizen or resident in Ghana. According to one EHO, a substantial section of the general public were not sanitation-cultured, because if they were, they would observe, at least, basic sanitation practices such as refraining from littering and defecating indiscriminately.

Below is what another EHO said in support of this argument:

Do we even need laws before we know that it is not good to defecate in the open or dispose of waste onto the street? In the cities and towns when people's residential areas get flooded as a result of torrential rains, some take advantage and throw all manner of rubbish into the running waters, forgetting that the rubbish can choke the drains, or drain into the sea to cause havoc to the ocean ecosystem. I am talking about culture in the sense of doing the right thing whether or not somebody is watching. Sanitation-cultured people will strive to put up proper sanitation behavior, whether or not there are laws. Therefore, low compliance is an attitudinal and cultural issue.

Similar to the evidence adduced from the above report, several studies [39–41] concluded that the persistence of sanitation challenges in the country could be attributed to the poor attitude and culture of the Ghanaian public. Another reported cause of low compliance was the low commitment to enforcement by both government and its enforcement agency staff. On the one hand, the respondents, except the EHOs and the policeman, indicated that the government institutions responsible for implementing the laws were not committed to enforcement, hence, the low level of compliance. They also reported that the government agencies were prone to corruption which emboldened the public to refuse to comply, knowing that they could bribe the enforcement staff to avoid or escape arrest or prosecution. On the other hand, as reported earlier, the EHOs attributed it to the government's failure to provide the needed support in the form of funds, logistics, and staff motivation to enforce the laws. One EHO posited as follows:

One of the causes of non-compliance is corruption. Some sanitary inspectors can take a bribe and set the offender free. The regulated are aware of this therefore they do not feel obliged to comply because the person or institution checking to ensure compliance can compromise their integrity by taking bribes. This means the offender will not be prosecuted for violating the ES regulation. Many businesses or industries dump their waste at unapproved sites. The sanitation inspectors are aware of this but the offenders are never arrested and prosecuted, why?

The quote accords with the observation by Mensah [2] that weak and corrupt environmental institutions are part of the reason for low or non-compliance with ES laws in developing countries. According to Mensah [2] if the institutions are unable to effectively inspect, prosecute, and adjudicate environmental violations, the regulated community may reasonably believe that violations will not be punished so they do not feel obliged to comply.

Another finding of the study was that compliance was low because of poverty and the low level of education of the majority of the population. According to all the respondents, education increases the level of knowledge and awareness on the importance of sanitation and hygiene so it could positively influence compliance. One respondent (the MP) reported:

The more an individual becomes educated the more likely the individual is to comply with sanitation regulations. That is why sanitation and hygiene are usually better in high-class residential areas which are occupied mostly by enlightened people. In the slums, compliance is low because the residents' education level is low so they are not able to appreciate the essence of proper sanitation and hygiene. For some of them, even if they are afflicted with a sanitation-related disease, they attribute it to something else and move on. Also due to poverty, many people are unable to provide a household toilet. They are also not able to afford the cost of house-to-house waste collection services. ES management in the country is a complex issue that requires a multi-faceted and multi-dimensional approach to deal with it. (Former MP)

Another factor that was reported as being responsible for low compliance was inadequate dustbins placed at vantage points in most towns and communities in the country. In that regard, one traditional authority reported as follows:

Although it is known that some people would put the litter anywhere even if a litter bin is close by, at least many other people would also do the right thing by depositing their litter into the bin if one is available. However, the bins are not available at all the places where they should be, forcing people to throw the litter anywhere. I acknowledge that there may be exceptions but, generally, that is the case. (Queen mother)

The evidence suggests that, although the government and private sanitation companies had provided some waste containers at some vantage points, the facilities were inadequate, forcing people to disregard the regulations. The ideal was for every house to patronise the house-to-house waste collection services provided by Zoomlion, the MMDAs, and others, but due to poverty most landlords and tenants could not afford these services. Besides, despite the wide coverage of their cleaning and waste collection services in Ghana, Zoomlion had not been able to cover all communities in the country, nor had they and the MMDAs been able to provide adequate infrastructure for waste management everywhere in the country.

3.2 Improving compliance

The effectiveness of ES regulation is measured by public compliance with the regulations. Therefore, having adduced reasons for the low level of compliance with the ES regulations, the respondents were asked to suggest how compliance with the regulations could be improved for improved sanitation that would bring about improved public and environmental health. All the respondents indicated that to ensure compliance with the regulations, there was a need to strengthen enforcement. One respondent argued that:

Ghana has all the policies and by-laws for ES management but they are not complied with because of the weak enforcement of the regulations. The surest way to ensure public compliance with the regulations is to strictly enforce the regulations. (Zoomlion Officer)

The respondent's argument corroborated the finding by Antwi-Agyei et al. [3]. The finding was that Ghana, like many other developing countries, had well-established and comprehensive environmental regulations, however, the will and commitment to enforce the laws were lacking. This was instructive because the citizen may prove unyielding, but as Mensah [14] and Lissah et al. [40] argued, to ensure compliance, the enforcement agencies must be prepared to defy the odds in dealing with people who disobey the laws. The respondents' perspective regarding the inadequate will on the part of the authorities to implement the sanitation laws was against one of the tenets of the deterrence theory [22]. The tenet is that commitment to enforcement of the regulation is essential for securing compliance. This implies that countries ought to put in significant effort to develop effective enforcement mechanisms to ensure compliance with laws.

Another strategy to increase compliance as reported by the respondents was the need to increase knowledge and awareness of the public by making available information that would help the regulated to understand what constituted appropriate behaviour. Four respondents indicated that public access to information on the regulations was very important for ensuring compliance with the laws. According to one of them:

...the public need not only to be aware of the regulations but they should also be educated about them. People cannot obey laws they do not know or are not aware of. In some cases, they may be aware of the laws but they may not understand so they need to be educated. If they do not understand, they may either resist or not comply, therefore, the regulator and its agencies should not only create awareness but should also educate the public on the laws. The Ministry of Local Government and

Rural Development, the Ministry of Water and Sanitation, and the MMDAs should collaborate with the National Commission for Civic Education and Traditional Authorities to educate the public on the ES regulations. Some education is being done but there is the need to intensify and simplify it in the language the public understand.

The finding suggests that public access to sanitation information was low. The public needed information to enable them not only to make better decisions about their interaction with the environment but also to constructively criticise and hold authorities and other actors accountable for their actions and inactions [21]. Non-compliance by some people might not be deliberate but rather due to misunderstanding, misconception, or ignorance about the regulation, hence, the need for education and sensitization. Therefore, the suggestion to provide access to information on the laws and policies or educate the public on the laws appeared apt. It implied that contrary to the popular saying or anecdote that ‘ignorance of the law is no excuse for breaching it,’ knowledge and awareness were important for compliance with the ES laws. Theoretically, this approach to increasing compliance agrees with the catalytic strategy [16,27] of inducing compliance, which is based on the assumption that people are motivated to comply with regulations, but are not able to do so because they do not understand what can or should be done.

In the words of the lecturer/researcher, digitization of the surveillance system would help increase compliance. Specifically, this respondent said:

To ensure a higher level of compliance with the ES laws, it should be impossible, or at least, be extremely difficult for any sanitation offence to pass undetected. The traditional system is not too helpful enough because it is unable to detect a lot of the offences. With the digitisation of the system, those who hide to engage in the indiscriminate waste disposal and defecation practices are more likely to be caught and dealt with. This would send signals to all and sundry that they cannot hide or escape punishment if they engage in any unapproved sanitation practice. Therefore, people would be deterred.

The quote implies that the monitoring system should be such that it would make people conscious of the fact that the system would surely detect non-compliance and take appropriate action against offenders. This is in line with the theoretical arguments of compliance as advanced by Winter and May [18] who argued that the higher the probability of detection of offence, the higher the degree of compliance by the regulated. Compliance is also greater if the regulated public knows or thinks there is a higher likelihood of a severe sanction for a given violation.

It became evident that in order to increase compliance with sanitation laws in Ghana, the country had to fight poverty and increase the level of education of the populace. According to five of the respondents, some people in the country could not simply comply with the policy regarding the provision of a decent toilet in the house or afford to rent a house with a decent toilet due to poverty. Compliance was also reported to be low due to the low level of education of the majority of the population.

It is not the case that all highly educated and economically empowered people would be automatically compliant with sanitation laws, but the likelihood of their compliance level being higher than the poor and uneducated is higher. The more an individual becomes highly educated the more likely the individual becomes more sanitation-conscious, therefore, the more likely he or she would comply with sanitation with regulations. Highly educated people are more likely to appreciate the need for a decent toilet and can also afford to provide one in the house due to their likely higher economic empowerment. (An EHO)

The evidence suggests that education increases the level of knowledge and awareness on the importance of sanitation and hygiene and, therefore, could help improve compliance with ES laws. As pointed out, all the respondents observed that poor compliance was, more or less, a culture in Ghana. In this regard, the respondents indicated that sanitation should be made to be seen and regarded as part of the culture in the home, school, church, mosque, market, workplace, and community. To improve compliance, the lecturer/researcher was of the view that:

...environmental education must be intensified and should permeate all the levels of Ghanaian society. Knowledge and best practices should be shared with all stakeholders so that compliance will ultimately become more voluntary than coercive. Although coercive measures should be applied where necessary, education and sensitisation could encourage and inspire voluntary compliance with ES laws. Prominent and respected personalities in the community should be leveraged to embark on voluntary compliance advocacy and campaign.

The quote suggests that morality and character influence behaviour, including sanitation behaviour, therefore using disciplined, trustworthy, and respected personalities in the communities to disseminate information on the need to comply with the laws could help to increase compliance with the ES laws in Ghana.

All the respondents, except the Zoomlion Officer, the EHOs, and the policeman, contended that since ES funding was a challenge to the central and local governments in the country, it would be necessary to encourage private participation in the enforcement of compliance

with ES regulations in the country. The respondents who shared this view contended that the private sector was more effective and efficient than the public sector. According to them, the private sector could mobilise the much-needed funding for infrastructure, education, and law enforcement to improve compliance. The private sector could do away with the bureaucracies and inefficiencies associated with compliance management. One of these respondents opined:

Zoomlion for instance is doing very well with sanitation management in Ghana but they are not into enforcement. If the private sector is contracted to manage ES regulation compliance in Ghana, I believe that compliance levels will increase. This is because the private organisations are likely to do more effective sensitisation, inspection, and monitoring than the municipal authorities who are a mere extension of the central government. The government should contract and cede part of the enforcement powers to the private sector and let us see what will happen in a few years with respect to compliance with the regulations in the country. (Traditional chief)

This submission demonstrated the confidence reposed in the private sector as a potential better manager of compliance with sanitation regulations than the state-owned apparatus. Further to this, the traditional authority was of the view that, when given the chance and power, the traditional and religious leaders could increase compliance with sanitation laws at the local community level, especially in the rural areas of Ghana. According to the traditional chief, traditional and religious systems of exacting compliance would be helpful because most of the subjects respected the traditional chiefs and religious leaders more than the sanitary inspectors of the MMDAs. The traditional leader said:

Even when people in the communities are arrested for sanitation offences by the EHOs, some of the offenders turn to the traditional, religious, and political leaders, as well as other respectable individuals in the community to plead on their behalf. Many of the traditional and religious leaders command more respect in the communities than the MMDAs' sanitary inspectors, although these leaders do not have as much legal backing as the MMDAs do.

The two traditional authorities maintained that when the traditional authorities made rules that no one should dispose of waste indiscriminately in the community the people were likely to comply because the subjects were aware that offenders would be dealt with. Furthermore, when the religious leaders used the pulpit to advise the congregation, the followers were more likely to obey. Consistent with this finding, Osumanu et al. [35] found that, unlike the modern judicial process, the judicial procedure

under the traditional justice system did not have complexities and formalities commonly associated with modern courts; was non-bureaucratic and adopted common-sense as opposed to a legalistic approach to problem-solving.

In the opinion of two out of the eleven respondents, ensuring compliance with ES regulations must not always be approached from the punitive angle. The punitive approach should be supported with remunerative considerations. Regarding this, one respondent suggested that there should be a 'league table' of sanitation performance for the regions, districts, and communities in Ghana. Further, during World Sanitation Days or National Sanitation Days, the cleanest regions, districts, and communities could be awarded. The award could be just the announcement of the winners or some development projects to be undertaken in those places as a recognition of their performance in ES. This would serve as an incentive for the regions, districts, communities, and others to comply with sanitation best practices. According to the respondent:

...some government development projects should be tied to the maintenance of proper sanitation such that the communities that are able to keep the sanitation standards will benefit from those projects. This will make the Regional Ministers, District Chief Executives or Mayors, Community chiefs, and Assemblymen/women take a keener interest in sanitation in their respective jurisdictions to ensure compliance with sanitation standards...

At the individual level, the respondents suggested that people found to have dumped waste or defecated indiscriminately could be made to engage in community service such as sweeping the street or the public toilet for some time, instead of being fined or prosecuted. The shame would compel people to comply with regulations. These suggestions accord with the rationalists' theoretical view that compliance results from concerns about reputation [10,42]. It is also in consonance with the constructivist's argument that actors could be socialised to comply because they seek esteem through compliance, and shun the shame and ostracism associated with non-compliance [13].

All the respondents indicated that managing compliance with ES regulations appeared theoretically easy as, in theory, the government could compel everyone to comply, but in practice, it was a complex issue that needed to be approached with tact, professionalism, commitment, education, and infrastructure provision. It required effective collaboration between the regulator and the regulated to achieve and sustain the desired level of compliance. Additionally, the lawyer posited that effective communication between the enforcement agencies and the general public

could help to increase compliance with ES regulation in Ghana. According to the lawyer:

Maintaining open and transparent communication channels with the general public will generate public support for compliance management. With effective communication, the public will collaborate with the implementing agencies to promote compliance. When that happens, people can report observed cases of non-compliance with the ES regulations to the implementing agencies. Civil society can put pressure on the government to provide the support that is needed to take meaningful actions towards compliance.

Similarly, the lecturer, supported by the policeman and the Zoomlion staff, was of the view that the monitoring units of the MLGRD, as well as the MWS should undertake systemic checks on compliance. They should collect and analyse data on public compliance status and evaluate progress in sanitation policy and law implementation. Aside from the ministerial checks, the inspectorate division of the MMDAs should monitor the public conformity to the use of sanitation infrastructures such as toilets, waste receptacles, and dumping sites and take prompt action to correct any deviation from conformance to standard requirements. This was in line with advocacy by Mikkelsen *et al.* [20] for the use of different approaches to ensure effective implementation of regulations: particularly the coercive approach (based on monitoring and threats of punishment) and catalytic approach (based on dialogue, persuasions, and incentives) approaches.

The study had some limitations. It used a limited number of respondents whose selection was also purposive. While this is justified by the qualitative nature of the study, increasing the number of respondents could have covered the views and perspectives of more participants. The number of participants was based on thematic saturation rather than a statistical calculation. Therefore, the conclusions were based on transferability and not on the statistical models of generalizability.

4 Conclusions and recommendations

The study explored the causes of the low public compliance with ES regulations in Ghana and how compliance could be improved. It was established that the main reason for low compliance with ES regulation in the country was the failure of the government and its agencies to enforce the laws due mainly to inadequate commitment. The others were the low capacity of enforcement

agencies, corruption, poverty, inadequate education, and inadequate public access to sanitation information. The major reasons for non-compliance with by-laws regarding the provision of home or household toilets were the proliferation of public toilets, and the lack of space in most existing houses that did not make provision for the toilet during the construction of the house, as well as sanitation not being considered a priority. The main reasons for low compliance with waste disposal regulations were inadequate sanitation infrastructure and the lack of sanitation culture in the country. The study further established that ES compliance management appeared linear in theory but not in practice. Theoretically, the regulator had the power to compel the regulated to comply through deterrent measures. In practice, however, inducing compliance with the regulations was a complex endeavour that required a multi-faceted solution. Though the state was the main source of the regulations, compliance management involved a conglomerate of arrangements.

The government should build the capacity and integrity, of the enforcement agencies to enable them to establish a more effective relationship with the regulated community for effective enforcement and compliance management. In this connection, the MWS and the MLGRD, in collaboration with the MMDAs, should more intensively educate the public on the ES policies and by-laws. The sanitation education messaging should be designed in languages that can be easily understood by the general public, regardless of their educational background. The law implementing agencies should employ both punitive and remunerative measures to exact compliance. While using punitive measures such as prosecution and fines to discourage non-compliance, remunerative measures should also be considered as catalysts for compliance. For example, periodically announcing and rewarding the cleanest regions, districts, and communities in Ghana by the government and its implementing agencies could engender compliance. Also, reserving some development projects for the cleanest communities could motivate the various regions, districts, and communities to comply with sanitation laws. There could be an ES league table for the regions, districts, and communities which could motivate entities to strive for accolades and avoid shame by being at the bottom of the table.

There is a need to encourage voluntary compliance with ES laws by individuals. In this regard, the MLGRD and MWS should implement strategies that foster moral obligation among the individuals. They could leverage respected people and institutions in the communities to disseminate information on the essence of compliance with ES regulations. They could involve the traditional authorities, reli-

gious leaders, and other respectable people in the communities in the sensitization and advocacy campaigns. Besides, the government could allow more private sector participation in ES management in Ghana. The private sector could inject new ideas into enforcement and compliance management. The private sector could also leverage funding and logistics that would help to provide infrastructure for the management of sanitation. Additionally, there should be effective communication between the enforcement agencies and the general public. Maintaining open and transparent communication channels with the general public could generate public support. With effective communication and collaboration, civil society can be an ally to the enforcement agencies in promoting compliance through advocacy and social pressure on the public. Further studies could look at the issue of improving compliance using households as the unit of analysis. This will allow for an enhanced sample size using the random sampling technique to allow for the use of statistical analytical models for generalization of the findings.

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