Water, Sanitation and Hygiene Responses to COVID-19 by Business, Society and Institutions in the City of Mutare

JEOFREY MATAI[1] AND INNOCENT CHIRISA[2]

Abstract

This article examines the Water, Sanitation and Hygiene (WASH) responses by the business community, society and institutions to the outbreak of COVID-19 in the City of Mutare, evaluating the challenges being faced and then identifying the implications to urban planning practice. A qualitative approach was adopted, making use of interviews with participants from the business community, society and government institutions and document analysis as data collection instruments. A descriptive research design was employed to guide the research. Findings reveal that while Mutare is not experiencing a serious water crisis, Dangamvura and Chikanga Phase 2 residential places in the city are experiencing water shortages. Results also indicate that the outbreak of COVID-19 has not caused any significant changes to the way the business community and society operate, although they have participated in dealing with the pandemic. Institutions have also responded by mobilising other players in monitoring the activities henceforth. It is concluded that WASH has a significant contribution to the solutions to prevent the spread of COVID-19. It is recommended that WASH services should be planned for and upgraded in proportion to the growth

[1]Department of Architecture and Real Estate, Faculty of Engineering and Built Environment, University of Zimbabwe

[2]Department of Demography Settlement and Development, Faculty of Social and Behavioural Sciences, University of Zimbabwe

of cities and that principles of planning self-contained neighbourhoods should be used in modelling cities.

Keywords: *COVID-19, institutions, Government, Neighbourhood, Response*, *Policy*

INTRODUCTION

The outbreak of COVID-19 caught many local authorities in Africa unprepared to handle the pandemic despite seeing it coming. Among the recommended preventive measures for COVID-19 are hygienic practices such as washing hands regularly, avoiding contact with infected people and avoiding overcrowded places (Anjum & Nagabhatla, 2020; Cherif & Mejjad, 2020; Crmona-Moreno, 2020; World Health Organisation, 2020a). However, following such measures is a difficult task as the reality in most developing world cities is that several neighbourhoods do not have access to piped water at home and the sanitation facilities, among other things, are inadequate

Safely managed water, sanitation and hygiene (WASH) services are an essential part of preventing and protecting human health during infectious disease outbreaks, including the current COVID-19 pandemic. One of the most cost-effective strategies for increasing pandemic preparedness, especially in resource-constrained settings, is investing in core public health infrastructure, including water and sanitation systems. Good WASH and waste management practices, that are consistently applied, serve as barriers to human-to-human transmission of the COVID-19 in homes, communities, health care facilities, schools and other public spaces (Cherif & Mejjad, 2020; Parikh, Priti, 2020; Roy *et al*, 2020). The outbreak and spread of communicable diseases are a common phenomenon in cities across the globe.

The occurrence of these communicable diseases and the manner in which they spread is linked to the process of urbanisation and the characteristics of cities, particularly their structure and form. Urbanisation, for example, results from an increase in the number of people living in cities, usually in high densities, through in-migration and natural population growth (Dociu & Dunarintu,

2012; Lubove, 1967). The increase in urban population causes the physical expansion of cities, usually extending their boundaries with consequential effects of sprawling development (Allen, 2009; Lubove, 1967). Provision of basic services and infrastructure as well as maintenance in such setups is challenging. The resultant situation are cities whose parts are partially serviced or not serviced at all. Water provision, sewerage reticulation and waste management, health facilities and employment opportunities are usually lacking in some parts of the cities, especially the peripheral zones.

In Zimbabwe, like any other country, the government adopted several measures to deal with COVID-19. These include, among others, imposing lockdowns to minimise movement of people to ensure physical and social distancing, closing down informal sector operations and other "non-essential" businesses (Mackworth-Young *et al*, 2020; Makurumidze, 2020; Price, 2020). Studies have been conducted on the importance and challenges of WASH in dealing with COVID-19 (see Alegbeleye *et al*, 2020; Cooper, 2020; Crmona-Moreno, 2020). However, little has been done to investigate institutional, communal and societal responses to WASH facilities in relation to COVID-19, yet this is a critical aspect in the fight against the disease. Hence, the glaring research gap has motivated this article. This article is organised into seven sections that cover the introduction, conceptual framework, literature review, methodology, results and the discussion. The study conclusions are presented from which recommendations and policy options are presented. Proceeding after this section is the conceptual framework.

CONCEPTUAL FRAMEWORK

The Pressure-State-Response (PSR) framework informs this article. The PSR framework was first introduced and adopted in the field of environmental management by the Organisation for Economic Co-operation and Development (OECD) for environmental reporting in 1993. This framework links pressures on the environment because of human activities, with changes in the state (condition) of the environment (land, air, water, etc.). In response to these changes, society introduces programmes and policies that are aimed at reducing or mitigating the pressures or to restore natural resources. In this article, the pressure is exerted on cities with indicators that include activities that relate to the rates of urbanisation, through natural increase and migration,

sprawling growth of cities resulting in deforestation with resultant effects of, among others, zoonotic diseases and high population densities that increase the risk of outbreaks and spread of diseases. The increase in population and sprawling growth affect service delivery and infrastructure provision. In most fast-growing cities of the developing world, some parts of the city do not have access to piped water, reticulated sewer and effective solid waste management systems, among others. The outbreak of diseases, such as cholera, typhoid and COVID-19, also add pressure to cities. The resultant pressure creates a certain undesirable state or condition within cities.

The condition of cities, following the aforementioned activities that put pressure on cities, reflect their situation. In this case, the city is characterised by densely populated places that are characterised by non-availability of running water and lack of infrastructure for sewerage reticulation and waste management (Allen, 2009; Lubove, 1967). These places encompass high incidences of disease outbreak and the spread thereof. Indicators include a high prevalence of communicable diseases. In most cases, recommended measures to deal with such diseases are constrained by the absence of suitable services. For example, among the measures recommended to prevent the spread of COVID-19 are washing hands frequently, social and physical distancing, quarantining and self-isolation of the infected people (Amankwaa & Fischer, 2020; Ihekweazu & Agogo, 2020).

With cities that are in the aforementioned condition, such measures are difficult to practise. People who stay in places without clean and running water cannot wash their hands frequently. Those in crowded places cannot practise self-isolation and those who depend on activities, such as vending in crowded places for their day-to-day income and without savings, cannot avoid crowded places or practise physical distancing. They need to sell their products to sustain themselves. There is, however, a response to this state by all stakeholders, including, but not limited, to individuals, institutions and business communities. In the face of such a state, the question that seeks to be answered is how have the business community, institutions and society responded to COVID-19 in Mutare?

Response mechanisms to the condition of cities discussed above are usually through direct and indirect actions by various stakeholders. Most governments across the globe have responded to COVID-19 by imposing lockdowns in that movement of people was restricted to their neighbourhoods (Ihekweazu and Agogo, 2020; Mackworth-Young *et al*, 2020). In Zimbabwe, a few grocery shops were allowed to operate within limited hours and people were not allowed to travel beyond a radius of five kilometres from their places of residence (Statutory Instrument (SI) 110 of 2020). These lockdown regulations also applied to market places. This affected the activities of the informal sector that relies heavily on the movement and high population densities of people. It is argued that COVID-19 had some psychological problems, such as anxiety, fear, depression and insomnia to which institutions, both public and private, responded through psychological interventions (Li *et al*, 2020). These psychological interventions include increasing mental health services at hospitals and online mental health services in designated isolation hospitals (*ibid.*). The business community has responded in several ways to the COVID-19 outbreak. The responses include, among others, introducing 'working from home' practices and introducing and/or improving online services, the retail sector introduced or intensified online shopping and delivery services to minimise movement and interaction of people (Brynjolfsson *et al*, 2020; Kwok *et al*, 2020; Mamoon and Shield, 2020). Society also responded to the COVID-19 outbreak mainly through the adoption of coping strategies to survive through the lockdown period. Some responded by following the lockdown requirements of avoiding travelling, practising personal hygiene and adopting social distancing measures (Kwok *et al*, 2020).

The framework of pressures, state and responses presented above may not be exhaustive of the situation in cities, but it gives grounding into the study. Given that COVID-19 imposed pressure on cities and created certain conditions that defined new ways of doing things and instigated new behaviour to people, there are positive and negative aspects to this. For example, half of the population that was employed before COVID-19 was now working from home, while 10.1 percent of the participants indicated that they were either laid off or were furloughed (Brynjolfsson *et al*, 2020). The

reduction in the need for commuting is a positive move in the context of urban planning and climate change as it reduces the emission of greenhouse gases. However, laying off people from employment poses a big challenge as this increases the population of vulnerable people. On the other hand, the demand for WASH-related facilities in residential places where people will be spending much of their time also increases.

The recommended measures to prevent COVID-19 include, among others, increasing quarantine and health centres, repair of infrastructure to improve WASH services, inclusive WASH provision and regulating the activities of the informal sector and the movement of people (Mackworth-Young *et al*, 2020; Price, 2020).

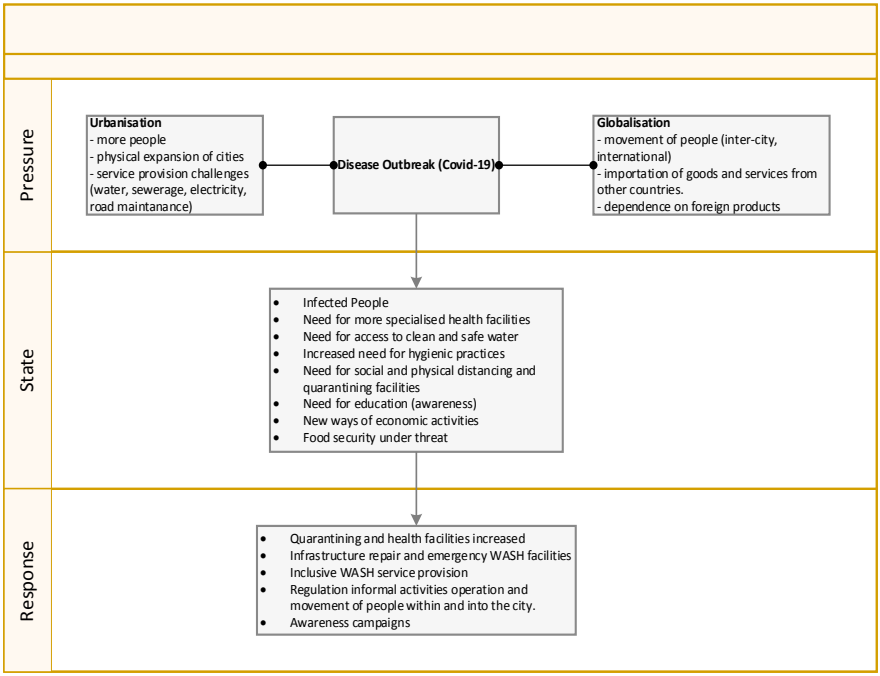

Figure 1: Conceptual Framework of the Study

LITERATURE REVIEW

This section puts the study into context by reviewing existing literature on COVID-19 and WASH. The purpose is to acknowledge existing studies and show how this article blends with the existing body of knowledge about COVID-19 and WASH. As such, the literature reviewed covers aspects, such as the role of institutions, society and the business community in WASH and how WASH and COVID-19 are related.

WASH is considered vital in suppressing and treating COVID-19. In response to this consideration, government institutions in countries like Ghana and Kenya, have interfered by way of paying water user bills for and providing water to poor and vulnerable communities (Cooper, 2020). Development partners have also supported new water sources for poor communities while companies that provide water utilities have also been supportive through allowing the use of water despite non-payment of tariffs, particularly in the Middle East and North Africa (*ibid.*). While this has been the response from other countries' institutions, shortage of finance has affected their efforts to deal with WASH issues in the fight against COVID-19 (Ndoma, 2020). Considering that there is a positive correlation between better access to WASH services and lesser effects of COVID-19 (Roy *et al*, 2020), it implies that such cities where the institutions have limited capacity to provide effective and adequate WASH services are at risk of experiencing the severe impact of the pandemic. However, evidence from confirmed COVID-19 cases so far shows that places with better WASH services suffered more effects of the COVID-19 pandemic compared to those with poor WASH services (see World Health Organisation, 2020b).

Most countries responded to COVID-19 pandemic by promoting physical isolation at home for people who are suspected to be infected by the disease. This has been considered effective. However, Howard *et al,* (2020) argue that the effectiveness of this approach is dependent on the adequacy of hygiene facilities with sufficient water and other materials that keep bathrooms, kitchens and other places clean. This is practically impossible for large

numbers of households. Workplaces, both formal and informal, are also expected to have such facilities. The consequences are that states, through their agencies (usually public institutions), have a responsibility to ensure that people have clean and safe water to enable hygienic practices that contribute to addressing the disease.

Institutions in some parts of the world have responded to COVID-19-WASH issues through increasing access to water and improved sanitation in several ways. For example, UNICEF drilled boreholes across the globe and rehabilitated defunct pipe water systems to ensure that vulnerable societies have increased access to water services (Cooper, 2020; Crmona-Moreno, 2020). Sewer systems have also been rehabilitated in some parts of the world. Institutions also play a critical role in strengthening systems to monitor, operate and maintain WASH facilities through community participation and hygiene promotion (Cooper, 2020; Krägeloh *et al*, 2020). In light of this, institutions have a big role to play in responding to the COVID-19 pandemic. This can be through institutional effort in terms of financing and implementing projects that ensure adequate WASH services or in mobilising the people to act in certain ways that ensure that such services are adequate and efficient to the extent that they can significantly contribute to the management of disease outbreaks.

The most common problem in African cities is WASH-related challenges. Faced with exponential urban population increases, most cities are failing to provide their citizens with clean and safe water as well as good sanitation facilities. For example, Harare has about 56 percent of its citizens with access to improved water and sanitation (Banana *et al*, 2015). Similarly, national figures in Malawi indicate that over 50 percent of the urban population has access to improved WASH services. Lagos in Nigeria and Nairobi in Kenya, among others, are not exceptional cases. This exposes the citizens to communicable diseases, such as cholera, typhoid and COVID-19, among others, that are largely dependent on hygienic practices, including regular

washing of hands, drinking clean and safe water and keeping the living environments safe.

The outbreak of COVID-19 has prompted many public and private institutions, business communities and society to respond in a number of ways, particularly following the World Health Organisation (WHO) (2020) guidelines. Regular washing of hands, social and physical distancing as well as minimising shared items are some of the measures taken to mitigate the occurrence and spread of the disease (Mackworth-Young *et al*, 2020). Most of the practices are related to WASH, an indication of the importance of adequate and efficient water and sanitation infrastructure, particularly in cities where population densities are high. Against this backdrop, the study interrogates responses by various institutions, society and the business community in the face of the COVID-19 outbreak in Mutare. During the industrial era, cholera and typhoid influenced the sanitary reform movement. These epidemics contributed to developing water and sewage systems to fight the pathogens, eventually leading to a sanitary innovation and required the streets to be straighter, smoother and wider to install underground pipe systems. Furthermore, the third plague pandemic in 1855 changed the design of everything from drainpipes to door thresholds and building foundations (Budds, 2020; Klaus, 2020; Wainwright, 2020).

Globally, it is recognised that universal access to safe drinking water, sanitation and adequate hygiene services is indispensable to people's health, welfare and development (Amankwaa & Fischer, 2020; Crmona-Moreno, 2020). Despite this recognition, thousands of lives are lost due to preventable water-related diseases in the Western Pacific Region. However, the region has made significant improvements in providing sufficient, affordable and safely managed drinking water, sanitation and improved hygiene. This might have contributed to the decline in the number of COVID-19 cases (Alegbeleye *et al*, 2020; World Health Organisation, 2020a). Although WASH is critical as a measure of minimising the spread of COVID-19 (Cooper, 2020; Haddout *et*

al, 2020; Kassem & Jaafar, 2020), the impact of COVID-19 has been severe in some of the developed countries with advanced WASH facilities. For example, the World Health Organisation (2020b) shows that the most affected continent is America, followed by South East Asia and Europe. This is an indication of the importance of other preventive measures in addressing the spread of COVID-19.

Africa, has to date, recorded low levels of COVID-19 cases, ranked second from last according to the COVID-19 dashboard by the World Health Organisation (2020b). Fears are that the severity of COVID-19 can be worse in African countries where medical facilities and WASH facilities are generally poor and inadequate, with high levels of slums as well as high population densities. The lack of access to safe and clean water and sanitation facilities exposes inhabitants in African cities to the fatalities of COVID-19, if no action is taken, to ensure improved WASH services. This requires a collaborative response action from the institutions, society and business communities particularly in providing the much-needed WASH facilities (Howard *et al*, 2020).

RESEARCH METHODOLOGY

This article aims to examine the WASH responses by the business community, society and institutions to the outbreak of COVID-19, the challenges being faced and then identify the implications on urban planning practice. The interpretivism research philosophy was adopted to guide the study. Qualitative research methods were used to inform the collection of data and its analysis. To achieve the research aim, the study used the archival method (Ventresca & Mohr, 2017). The method was suitable in this study because it investigates documents and textual materials that were produced by and about organisation and communities (*ibid.*). Although the study is not about things that occurred in the distant past, responses to the COVID-19 pandemic include actions and policies that were adopted and implemented at the height of the outbreak, hence referring to archives will provide data that is useful to the study. Newspaper articles, including electronic databases, web pages and other documents that outlined the way forward in handling COVID-19, were analysed. Key informant interviews were also conducted to provide cross-

referencing of data (Cresswell & Cresswell, 2018). The target population comprised officials from government ministries and departments and business communities. Three participants from different departments from council were selected while seven members were selected from government ministries and departments as well as the business communities, making a total of 10 participants. Selection of key informants and the documents to be analysed was done purposively, based on the suitability, validity and reliability of the data provided. Data were analysed qualitatively in themes responding to the research aim. Although the study lacks input from residents of Mutare, it provides a good picture of the WASH responses in the face of COVID-19 in the city in which generalisations can be made to other towns and cities in Zimbabwe.

RESULTS

This section presents the study findings in line with the research aim. Focus is on WASH responses to COVID-19, particularly by institutions, business community and society. The first part of this section presents the distribution of COVID-19 confirmed cases in Mutare to have a picture of the town in the context of COVID-19 and to make the analysis of the responses.

Figure 2 presents data on the distribution of COVID-19 cases in the city of Mutare. Based on the analysis of COVID-19 map produced by the City of Mutare, Chikanga residential area reported the highest number of COVID-19 cases compared to the other parts of the town, followed by Dangamvura residential area. Phase 2 of Chikanga residential area has the highest number of confirmed cases. Concerning WASH, parts of Chikanga Phase 2 and Dangamvura experience problems in which case water is available only during the night and in some cases for a few hours. Although there are reports of an improved situation after the introduction of a water-rationing programme in 2019, water supply remains inadequate (Nyangani, 2019). Interviews reveal that with regards to waste collection and sewerage reticulation, Chikanga and Dangamvura are generally well managed. There are few incidents of burst sewer and heaps of uncollected garbage. However, Sakubva has high cases of sewer bursts and several heaps of uncollected garbage. In a way, the findings

reveal that water supply challenges are manifesting in some parts of the city of Mutare although the situation is better compared to some cities and towns in the country. The sanitation situation is also in a better, state except for Sakubva.

The distribution of COVID-19 presented above and the WASH situation across the city gives a snapshot of the state of the City of Mutare. It is this state that determines the responses on how the COVID-19 pandemic was handled from the perspective of WASH. Considering the severity of the pandemic and based on world infections and deaths statistics reported, several preventive measures were put in place to deal with the outbreak and spread of COVID-19.

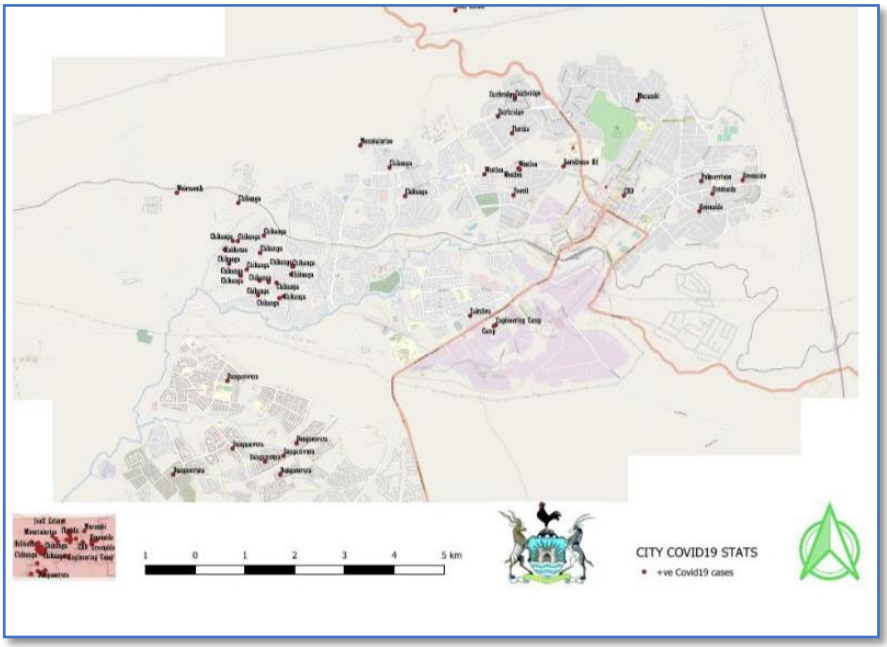

Figure 2: Distribution of COVID-19 Confirmed Cases in Mutare City (City of Mutare, 2020)

Findings reveal that public and private institutions responded to COVID-19 in various ways. However, the study focuses on WASH-related responses. Institutions responded by making awareness campaigns on the importance of washing hands regularly and hygienic practices. Private and public institutions did this collaboratively. The use of local radio stations and flyers enabled the campaigns to run smoothly amid the lockdowns without compromising social and physical distancing. The campaigns are said to have improved people's understanding of the need for hygienic practices and statistics from the Office for the Coordination of Humanitarian Affairs (OCHA, 2020) reveal that approximately 147 000 people were reached in Mutare City.

Interviews conducted revealed that funds were also mobilised by different stakeholders in the business community and the institutions to prepare the health facilities in the city ready for COVID-19. This includes improving waste management by way of providing vehicles and fuel for the collection of waste at the health facilities. However, respondents indicated that the expected amount of funding was not raised, although efforts were made. Institutional hygiene kits that include soap, cleaning materials and disinfections, were also provided in health facilities and other institutions, such as government offices, local authority offices and workplaces as part of sanitation and hygiene.

Findings also show that vending places were decentralised to Chikanga, Dangamvura and Hob-House residential areas. Findings from interviews indicated that the UNDP and CARE programme supported the construction of safe markets and vendor stalls equipped with infrastructure to reduce the spread of COVID19 and other re-occurring water-borne diseases, such as cholera and typhoid. This was in realisation of the need to decongest the market places and enable the management and enforcement of hygienic practices. Health workers were deployed at the market places with sanitisers at the entrance points to sanitise users of the market place. According to the data obtained from interviews with key informants, the business owners collaborated with institutions to ensure that there was clean water at different points in the market to enable people to wash hands where necessary.

In partnership with the business community and society, hand-washing stations were constructed across the city, particularly at the market places and institutions. These ensured that hygienic acts were practised where necessary

in different parts of the city. On the other hand, waste collection and sewerage reticulation were run efficiently to minimise bursting and accumulation of uncollected sewer. Society also responded by staying at home and avoiding unnecessary movements, the contribution of which, in line with WASH, was that the spread of waste was minimised. This, though, meant an increase in water demand as more people spent more time at home, rather than at work under normal circumstances.

DISCUSSION

Based on the findings, indications were that the WASH situation in Mutare was not very bad, although cases of inadequate clean water supply and inefficient waste management were evident in some parts of the city. In places where water challenges are experienced (Chikanga and Dangamvura), the cases of COVID-19 were higher than in other parts of the city. This concurs with other studies conducted that indicated that places with water challenges have higher chances of being affected by COVID-19 (Sivakumar, 2020; Vammen & Guillen, 2020). However, as much as there is concurrence with other studies' findings, the case of Mutare raises questions on the validity of this. Dangamvura experiences more water challenges than Chikanga but has fewer confirmed cases of COVID-19. This might be explained by the role of other preventive measures, such as maintenance of social and physical distancing, entailing the importance of the role of society and individual and neighbourhood level in responding to COVID-19.

In agreement with previous studies, the findings of this research show that collaborative approaches in addressing pandemics are critical. As revealed in the findings, institutions and business communities worked together in some programmes and activities that are earmarked to handle the spread of COVID-19. This has seen the necessary activities and programmes being implemented. This could explain the low cases of confirmed COVID-19 in Mutare as compared to other cities in the country. In the context of urban planning, the findings of the study indicate the need for planned market places at regional or local level within residential places. The decentralisation of markets was a response to the need to restrain the movement of people and to decongest the traditional market places to ensure that sanitation facilities are

adequate and easy to monitor. Pioneers have recommended the incorporation of such uses as market places in residential places in urban planning and design but the absence of such uses shows how current planning practices have neglected such principles.

CONCLUSION AND RECOMMENDATIONS

The study concludes that there is a relationship between WASH and the outbreak of COVID-19. This is shown by the high incidences of confirmed cases in areas that are facing water inadequacy problems. Without adequate water supply, adhering to the recommended preventive measures of washing hands, maintaining social distancing and hygiene practices is impractical. It is also recommended that collaboration between institutions, business community and society is key to the success of programmes and projects. In this case, the collaboration between institutions, business community and society played a critical role in addressing some of the challenges that were faced in addressing the outbreak of COVID-19. This has seen the creation of new market places, hand-washing stations and refurbishing and provision of equipment in health facilities, all of which are critical in ensuring and managing the WASH situation in the city. Another conclusion made from this article is that water and sanitation infrastructure is capital project. Such projects cannot be easily provided in the face of an outbreak as they need huge financial investment and time to plan for them. This is shown by the absence of any actions that are linked to the upgrading of water and sanitation infrastructure in places where they are lacking despite the full knowledge of their importance.

It is recommended that WASH services should be prioritised in cities. This implies that the bulk infrastructure should be planned proportionally to the growth of the cities. This will cushion the cities against pandemics, such as COVID-19, cholera and typhoid, among others, that are linked to WASH facilities. Thus, government and local authorities should consider partnerships with the business community and society in advance to ensure that WASH

services are prioritised and adequate. It is also recommended that the planning of towns at all levels should consider basic principles of planning and design, such as self-contained neighbourhoods. Such approaches to planning will ensure that services are provided in neighbourhoods, minimising the need for people to travel long distances to acquire the same services. This will make isolation and containment of outbreaks easy as movement can easily be controlled without significant effects on the people.

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