COVID-19 and the Environmental Hygiene Question: Some Proposals for Urban Health Governance in Zimbabwe

TINASHE NATASHA KANONHUHWA[1] AND HALLELUAH CHIRISA[2]

Abstract

The purpose of this article is to revisit the concept of environmental hygiene in so far as COVID-19 has projected itself like a contagion disease of which surfaces have to be cleaned time and again if the infection is to be reduced. The article, in a way, parameterises the ingredients that resolve the urban health governance of which tangible (including materials and finance) and intangible resources (including a social will, attitude and community engagement and awareness raising) are the linchpins for success. Case studies of cities within and outside Zimbabwe are used in a bid to draw lessons towards constructing a governance and urban resilience model for the country. The model is a function of social, technical, political and environmental parameters. Regular cleaning of surfaces at nodes of high population concentrations including schools, universities, airports, road-ports, shopping malls, to name a few, is imperative. This article engages a review of the literature and reveals that, if not controlled, COVID-19 can negatively affect the environmental hygiene of the area and hence the need for strict government control measures and increased awareness at individual and institutional levels to promote environmental hygiene as well as curb the spread of the disease.

Keywords: *parameterisation, governance, community, policy, self-regulation, regulation, finance*

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

[2] Population Services International – National AIDS Council.

INTRODUCTION

Due to its ability to spread quickly like a veld-fire and its propensity to kill masses, the COVID-19 pandemic has brought the health systems of many nations on their knees as it has caught millions unaware. Most of the COVID-19's deadly effects have hit urban centres as they act as the hubs of large populations. As such, many nations have adopted strict measures to control the spread and limited public interactions, such as the enforcement of social distancing and the periodic cleaning of hospital surfaces to promote environmental hygiene for people inside and outside hospitals. The article notes the role of urban planning in enhancing environmental hygiene and in providing lasting solutions in the event of unforeseen and deadly pandemics, such as COVID-19. This article also explores the concept of environmental hygiene as related to various environments that include hospitals and outside places where people live and operate. It examines the importance of maximising on tangible and intangible assets in improving environmental hygiene and in promoting urban health governance.

ENVIRONMENTAL HYGIENE AND URBAN HEALTH GOVERNANCE CONCEPTUALISED

Environmental hygiene is defined as the practical prevention and control processes used to improve basic environmental conditions affecting human health which include clean water supply, protection of food from contamination and human and animal waste disposal (European Environmental Agency, 2020). This, therefore, relates to the basic hygiene of individuals and institutions towards the environment. As a way to keep the hospital environment clean and safe, hospitals have traditionally engaged in cleaning of hospital floors and wall surfaces regularly with disinfectants. In a study to observe the level of cleaning thoroughness of a patient's immediate environment, results showed a mean cleaning rate of less than 30% for bedpan cleaners, toilet handholds, door knobs and light switches and a mean cleaning rate of over 75% for toilet seats, sinks and tray tables, with bedside rails and patient telephones being inconsistently cleaned in all the 23 acute care hospitals that were under study (Carling *et al,* 2008). This shows that some hospital surfaces received more attention than others. It has also been observed that pets, such as dogs and cats, farm animals and children who may be sharing a room and toilet with a sick patient, may be exposed to various

ailments (Cholapranee and Ananthakrishnan, 2016). In this case of COVID-19, there is, therefore, need to remain environmentally conscious and be aware of possible objects and animals that would need extra care and hygiene to prevent the disease from spreading at a faster rate.

The periodic cleaning of hospital rooms and surfaces becomes important in controlling the spread of diseases within and outside the hospital and clinic environments. In a study, 3 532 environmental surfaces were assessed for terminal cleaning in 260 intensive care unit rooms before and after structural education to improve procedural and administrative interventions. Results showed that only 49.5% of surfaces were cleaned at the baseline survey before structural education, a figure that improved to 82% after intervention practices (Carling *et al*, 2010). That experimental inquiry revealed the importance of educating healthcare workers about keeping the environment clean, as it does make a difference in improving the hospital environment.

More importantly, urban planning plays a critical role in determining the outcome of public health matters, as it integrates green, grey and blue infrastructure matters (Cobbinah *et al*, 2020). The COVID-19 pandemic has revealed the importance of urban green spaces in times of emergencies as they have been used as makeshift hospitals in some countries (*ibid.*). Open spaces can be used as an extension of important hospital facilities in times of crisis, especially when facilities have become overwhelmed. Community engagement is also important in management of green spaces, secure multiple opportunities, especially during times of crisis (*ibid.*). Integrating bigger open spaces in urban design helps health practitioners to create alternative solutions as regards to providing space for alternative emergency use in times of calamity. It is, therefore, argued that urban planning and public health matters are disjointed and evidence has shown most African nations losing their open spaces to other uses, hence the need for African nations to bring open spaces and their management at the centre of urban planning (*ibid.*).

Environmental health, therefore, touches on many aspects as it aims to make sure that hospital surfaces receive constant cleaning in order to keep all

dangerous and deadly pathogens off the surfaces. This cuts the risk of diseases from spreading to people and the outside hospital environments. Environmental hygiene can also be practised by many institutions that deal with people and at individual level, where people must constantly mind their environments and maintain cleanliness, to prevent and control the spread of diseases, in this case, the COVID-19.

LITERATURE REVIEW

Being a new demon on the market, societies worldwide have been forced to make policies based on limited information (Hsiang *et al*, 2020) and due to the unavailability of the drug to treat the pandemic, countries have turned to non-pharmaceutical interventions to slow down the spread of the COVID-19 disease (Lewandowski, 2020). The COVID-19 can spread to people through sneezing and touching contaminated surfaces. Due to its highly contagious nature, the COVID-19 has been fought through various policies and these include broad policies, such as social-distancing, the forced closure of businesses and the banning of social gatherings (Pindyck, 2020) at the national and global level.

It has been argued that the development of anti-viral drugs is unlikely to affect the spread of the disease and the need to reduce contagion becomes the only effective policy tool of choice (Lewandowski, 2020; Pindyck, 2020). Studies have shown that the spread of influenza is more pronounced during economic booms and in workplaces where the employment rate is high (Lewandowski, 2020). This justifies the need to enforce social-distancing and the closure of schools and businesses by governments, as it may become reality for schools and workplaces to act as breeding grounds for the spread of the COVID-19, that, at times, present flu-like symptoms and coughing in patients. In periods of much economic activity, people are most likely to interact more and limiting the levels of economic activities becomes crucial to controlling the spread of the disease.

A study carried out on a total of 48 samples aimed to examine individual and institutional hygiene practices and bacterial contamination in food services at

Makerere University revealed that food samples tested positive to high levels of coliform, with two samples testing positive for salmonella (Baluka *et al*, 2015) That indicates the risk of food contamination at food courts and hence, a need to limit such activities in times of disease outbreaks, such as the COVID-19 pandemic. The Makerere University study recommended the need for food service worker training and managerial improvement of environmental hygiene so as to improve food safety in institutions (*ibid.*). Limiting the number of food courts in the COVID-19 era becomes essential to controlling the spread of the virus.

However, some of these policy measures have been reported to negatively affect the lives of many globally. The forced closure of businesses, negatively affected the livelihoods of many as it has increased the unemployment rate (Hsiang *et al*, 2020) with people in the informal sector suffering the most due to unavailability of a stable income that would further expose many families to hunger. The closure of schools is believed to affect educational outcomes and hence, the hesitant attitudes by some populations before implementing the policies whose costs are very visible, whilst the health benefits and deaths that would have occurred are instead delayed, avoided or unseen (*ibid.*). This made it very difficult for people, especially in the informal sector, to understand that staying at home was more beneficial to them than going back to work in the 'unsafe' COVID-19 environment.

Organisations are said to be bundles of Intangible Resources (IR) and Tangible Resources (TR), with some researchers suggesting that IR most likely determine a firm's success as they are not easily acquired and replicated in factor markets (Kamasak, 2017). Tangible resources include finance and materials, whilst intangible resources include issues to do with social will, awareness campaigns and community engagement, among others. How an organisation or healthcare institution is placed in the minds of customers and the level of loyalty built over time becomes critical to the effective functioning of organisations and their success. It then becomes necessary for organisations to design mechanisms to integrate and reconfigure resources and renew or alter the resource mix to cope with environmental changes (*ibid.*).

It is acknowledged that environmental cleaning is a fundamental intervention strategy for infection prevention and control (Centre for Disease Prevention and Control, 2020). Faced with the COVID-19 pandemic and its highly contagious nature, hospitals must design means to ensure that hospital environments, like bed rails, floors and toilets, are effectively cleaned time and again to maintain a hygienic hospital environment. To gain the social will of the general public and loyalty and confidence of patients, hospitals must position themselves in the minds of people through proving that they are capable of offering good service to the populace and by creating more awareness campaigns so that the public becomes more informed and better equipped to fight the COVID-19 pandemic. It is argued that there is need to strengthen Global Financial Safety Nets in order to manage the economic effects of the COVID-19 virus, especially in developing world (Gallagher *et al,* 2020). In this regard, financial investments to improve hospital environments during and after the COVID-19 pandemic become critical in controlling the spread of the COVID-19 virus as well as other unforeseen pandemics which may occur.

The urban environment comprises many economic and social interactions, with greater concentration of people that makes the urban area to require unique solutions when it comes to urban governance. The urban population is also said to present a different health profile that requires governments to first understand the unique needs of the population in relation to the social and political environments in order for public health programmes to be effective and to successfully manage the programme implementation and institutionalisation process (Vlahov *et al*, 2007). The urban system is, therefore, a complex matrix of many inter-linkages that require much groundwork to first understand the various phenomena as well as people's ways of thinking so as to promote effective health governance in urban spaces. Good coordination and a spirit of community between various interested stakeholders becomes important in implementing an urban health governance that works.

Walsh (2020) stresses the need to integrate the COVID-19 experience into people's lives in order to enable relations to be strengthened with family, friends and community. Nurses can create a knowledge base that can be used

even by the ordinary international community with lessons from previous epidemics, such as the SARS epidemic (Smith *et al*, 2020). This would help individuals and institutions to reflect on past mistakes, solutions and reflect on how present processes and procedures can be successfully carried out. Collaboration at the international level, between health agencies, governments and key stakeholders, must make sure that timely dissemination of information is done and that there is no disconnection between those reporting and those needing the information (*ibid.*). Effective collaboration between interested stakeholders and the establishment of proper communication channels is key to making a path that comes up with solutions in dealing with new pandemics, such as the COVID-19.

In responding to various urban health challenges and situations, governments ought to design policies that they regulate and finance. In Britain's early 19th century, self-regulation was the norm, with a shift to a certain degree towards statutory regulation in the 20th century (Bartle and Vass, 2005). This meant that urban governance was no longer completely determined by market forces, but became partly controlled and regulated by government. It is, therefore, the role of the state to actively promote self-regulatory schemes that serve the interest of the public. These schemes manifest in two ways, where they are either triggered by an initial response to a clear public interest problem or through the need by government to enhance statutory regulation (*ibid.*). This shows that government policies are, at times, introduced to solve public challenges and as a result attract state and donor funds in order to make a positive mark as regards to issues of urban health governance.

RESEARCH METHODOLOGY

This study employs a desktop and document review of literature, by looking at various case studies regarding the issue of COVID-19 and the Environmental Hygiene factor. It reveals how the virus has incited environmental hygiene in both positive and negative ways and how urban health governance can be used as an effective tool to address environmental hygiene parameters and public health interests. The researchers made great use of recent scholarly articles to understand and grasp how the virus has affected various environments found

inside and outside hospitals and how urban design can be used to provide lasting solutions in times of unforeseen pandemics.

ANALYSIS AND RESULTS

Due to its ability to increasingly spread to people through sneezing and touching of contaminated surfaces and the unavailability of a drug to cure COVID-19 (Lewandowski, 2020), the best way for nations to curb the spread is to enforce policies that not promote the increased interaction of people. This has seen the global closure of schools and business as this aimed to reduce people's interaction. A study at Makerere University showed that some food samples tested positive for salmonella and coliform (Baluka *et al*, 2015). This shows that, in catering businesses, if hygiene is not fully practised, these businesses may act as agents for spreading contagious diseases such as the COVID-19. In such cases, constant cleaning of surfaces and extra care in handling food when serving the public become important in ensuring environmental hygiene and in making sure that the food does not become a health threat to the unsuspecting public.

To promote the aspect of environmental hygiene when dealing with the pandemic, various measures come into play. These include the need to strike a balance between the tangible resources (such as financing and materials) and the intangible resources (such as social will and community engagement) in managing organisations (Kamasak, 2017). In this case, for communities and treatment centres to thrive in the COVID-19 era, there is need for increased financing to develop public hospitals and improve healthcare institutions' working environment. In some cases, it may become necessary to build new hospitals, especially when faced with the ever-increasing numbers of sick patients who may flood public health premises. Communities must also be empowered through increased awareness campaigns to equip them with knowledge on the COVID-19 and ways to promote environmental hygiene as well as prevent its spread. There is, therefore, need to ensure proper information dissemination to guarantee that the needed interaction between health professionals and the public is secured (Smith *et al*, 2020). This helps the community to have the relevant detailed knowledge about the pandemic and how it can be prevented or stopped from spreading.

The unique needs of the urban population must be well understood in relation to the social and political environments so as to practise effective urban governance (Vlahov *et al*, 2007). This would help governments implement health policies that suit the needs of the urban population, which would, in turn, face less or no resistance. These measures would help promote environmental hygiene as people get to learn more and understand why it is important to do other things, such as social-distancing, the wearing of masks in public and constant sanitisation of hands when in public places.

THE ZIMBABWE HEALTH SYSTEM: AN OVERVIEW

The COVID-19 pandemic was declared a national disaster in Zimbabwe on 27 March 2020 after the death of the first coronavirus patient, with numbers increasing to 51 and the death toll rising to 4 by 22 May 2020. This resulted in the declaration of a 21-day national lockdown on the 30 March 2020 (Chigevenga, 2020). This was followed by the adoption of policies that included the enforcement of social-distancing, the wearing of masks in public and the closure of non-essential services or businesses, most of which clouded the informal sector. Strict screening measures, followed by a 21-day self-quarantine period, was now a norm for returning citizens (*ibid.*). All these measures were meant to control the rampant and uncontrolled spread of the disease in Zimbabwe's urban and rural environments.

Zimbabwe's public health systems is four-tier, consisting of 1,331 primary rural health centres and clinics, 179 secondary district and missionary hospitals, 7 tertiary provincial hospitals and 14 quaternary central hospitals (Japan International Cooperation Agency (JICA), 2012). In difficult times of pandemics such as the COVID-19, it becomes essential for the health system to effectively function from the primary level to quaternary hospitals in both the urban and rural setups in order to serve the increasing health demands of the population.

Zimbabwe's health system has, however, been crumbling, as characterised by the deteriorating health infrastructure, the shortage of the most basic drugs, such as pain-killers and an overworked and underpaid healthcare workforce (Chirisa, 2020; Dandara *et al*, 2020). The government is also troubled about other ailments, such as HIV&AIDS infections, tuberculosis, lung diseases and

diabetes, among others (JICA, 2012). It is against this background of a failing health system, that the country received its first blow from the COVID-19 in March, 2020. As a way to improve the hospital operating environments, some private hospitals such as the Rock Foundation and St Annes Hospitals received ventilators, masks and hospital refurbishments (*The Herald*, 27 March 2020; *The Independent,* 3 April 2020). These helped in improving the patient environment in the private hospitals. However, in public hospitals such as Wilkins, it has been reported that they have suffered from being ill-equipped (*The Herald*, 27 March 2020; *The Independent*, 3 April 2020). That shows a great disadvantage for public hospital environments as they are given less attention when compared to private hospitals.

COVID-19 INTERVENTIONS IN ZIMBABWE AND THEIR IMPACT ON ENVIRONMENTAL HYGIENE

The article notes that, at the core of environmental hygiene, is the need to prevent and control processes that aim at improving the basic environmental conditions affecting human health (European Environmental Agency, 2020). In preventing the spread of COVID-19, the Zimbabwean government has designed various ways to contain the virus, including the banning of social gatherings, such as churches, the closing down of schools and the installation of hand-washing basins across the country (Dzobo *et al*, 2020). The closing down of schools prevented children from interacting and attending school. In this regard, the health of students is protected as they are prevented from going into school environments.

The banning of sporting fixtures would limit interaction of people (both local and international visitors) at stadia, whilst the spread of hand washing basins across the country would help promote a sense of environmental hygiene as people are constantly reminded to wash their hands at hospitals, business institutions and at shopping malls as a positive step towards promoting environmental hygiene. Also, as a means of supporting the most vulnerable families, the Government of Zimbabwe facilitated cash transfers for the buying of groceries and the distribution of food hampers to vulnerable populations (United Nations Office for the Coordination of Humanitarian Affairs (OCHA), 2020). Such actions would limit people's movements and

interaction with the outside environment as a positive factor in promoting environmental hygiene.

Environmental hygiene ensures that clean water is supplied to the people. Most Zimbabwean urban centres, such as Harare and Chitungwiza, were, however, reported to face water challenges as councils failed to provide residents with adequate clean water supplies (Chirisa *et al*, 2020). As a result, people resorted to using boreholes as an alternative means of getting clean water (cf. Chirisa *et al*, 2014), that at times spend days without coming out of people's taps. The continuous gathering of people at boreholes went against some of the measures announced by government to control the pandemic, such as the practice of social-distancing and the banning of public gatherings. The crowding of people at boreholes put them and their surrounding environments at risk of spreading and contracting COVID-19 because of inadequate precautionary measures. In this case, people would still gather to get water for domestic use.

Some scholars have observed that proper and adequate provision of water for the urban population discourages public interactions (Mackworth-Young *et al*, 2020), as people will have no obligation to go in search of water at public places and crowding at borehole sites. These difficult situations that people are facing, put the environment at risk of possible contamination and without precautions such as strict sanitisation and mask wearing at boreholes, these areas may become possible sources for the spread of the disease. The country has also faced shortage of basic food commodities and long queues have been observed at some shopping malls in Harare as people queue to buy basics, such as mealie-meal (Chirisa *et al*, 2020). At most shopping malls however, people are first hand-sanitised before entering the shop and they must do so after correctly wearing a mask. These measures help to promote environmental hygiene as it reduces the level of contamination in the shop environments by customers.

Despite strict measures by government, the people's living and operating environments have remained at risk of contamination from citizens who have defied government policies on COVID-19. The article notes the strict screening exercise of returning citizens at the Zimbabwean ports of entry

(Makurumidze, 2020), with them being given a 21-day self-quarantine period to ensure that the returnees are free from COVID-19. Police have also made reports of 276 people fleeing from quarantine centres, including some who would have tested positive, with almost 30 of them having been caught and arrested, as of 31 July 2020, for exposing their families and friends to danger (*BBC News*, 19 July 2020). This shows the rebellious attitudes by some of the returnees and by so doing, they endanger the environment.

Police reports have revealed that more than 105 000 people have been arrested in Zimbabwe for violating regulations aimed at curbing the COVID-19 spread and these have included people who were caught without masks and those making unnecessary movements (*BBC News*, 19 July 2020). It has also been reported that two COVID-19 patients fled from Panganai Training Centre in Matabeleland South on Monday 10 July, 2020, with other reports stating that seven people escaped from Bulawayo Polytechnic and the 10 others from Mushagashe Training Centre in Masvingo (*African News Agency*, 10 July 2020). This shows a greater level of environmental and human exposure to possible contamination and spread of the disease, due to some people's inability to listen to and follow the COVID-19 procedures.

DISCUSSION

Like many governments across the world, on the 30th of March 2020, the Zimbabwean government imposed a national lockdown after the death of its first COVID-19 patient (Chigevenga, 2020). Some of the policies that have been adopted to control the spread of the disease include the enforcement of social-distancing, the wearing of masks and the closing down of non-essential businesses and schools, among others. By practising social-distancing and the wearing of masks, the risk of body fluids, such as saliva, and flues are reduced from reaching the next person. The closing down of non-essential businesses and schools, would limit interaction between individuals. The effective practice of these measures would help in promoting environmental hygiene, as people become limited in movements and at the same time, would not be exposed or expose other people and their operating, working or living environments to the COVID-19.

The government put strict screening at the country's ports of entry for returnees (Makurumidze, 2020) and a mandatory 21-day self-quarantine. These measures would restrict returnees from mixing with the rest of the population, without first being sure that these people are free from COVID-19. It would promote environmental hygiene, as this would act as a control measure aimed at protecting the health of the general public and possibly save lives of COVID-19 positive patients. However, there have been police reports that 276 people have illegally fled from quarantine centres, with 30 of them having been caught and arrested as of 31 July, 2020 (*BBC News*, 19 July 2020). The act of some people running away from quarantine centres poses significant threats to the environment.

A COVID-19 positive patient could spread the disease whilst in public transport and to their friends and family on reaching their homes. Such acts threaten environmental hygiene and hence, a need for people to be more educated and aware of the possible dangers attached to running away from quarantine centres. This calls for the need for stricter measures to keep people in quarantine centres under lock and key so that they do not pose a threat to the environment. Also, due to a difficult economic climate, some urban areas in Zimbabwe, such as Harare and Chitungwiza, suffer water shortages (Chirisa *et al*, 2020). In this regard, people would crowd at boreholes to get water. The element of positive environmental hygiene would depend with how people organise themselves at these boreholes and how they would observe government regulations of observing social-distancing, wearing of masks and the continued sanitisation of hands for each member before fetching water. It then becomes the government's obligation to provide residents with adequate water supplies, to cut the number of public gatherings that arise as a result of crowding at borehole sites, to promote environmental hygiene.

By crowding at shops to get basic food supplies, such as mealie-meal at shopping malls, long queues are at times observed (Chirisa *et al*, 2020). In such instances, the environment becomes at risk of being contaminated in the case of people not following the correct procedure, such as the correct wearing of masks. This has seen police arresting more than 105 000 people by 31 July, 2020 for violating the COVID-19 regulations (*BBC News*, 19 July 2020). If

people do not follow regulations on how to avoid or stop the spread of the COVID-19 pandemic, then, environmental hygiene is compromised, as more lives are endangered. The strict regulation by the police is, therefore, a positive mark in promoting environmental hygiene, as people are then coerced to follow policies on how to curb the spread of the virus.

CONCLUSION AND FUTURE DIRECTION

It can be concluded from the discussion that the COVID-19 pandemic has resulted in some government instituted positive environmental hygiene factors such as social-distancing, the wearing of masks in public and the closing down of schools and business, people's interactions have been reduced and this has, to a greater extent, promoted environmental hygiene. Positive environmental hygiene has also been cultivated through increased awareness campaigns to alert the public on COVID-19. This has encouraged people to be more environmentally conscious as they have learnt the importance of practising personal hygiene methods to avoid contaminating their immediate environment by reducing the risks of exposing the disease to many physical surfaces. In this way, the public is less endangered.

It is, however, important to note that good environmental hygiene is, at times, compromised and difficult to achieve as a result of the difficult economic situations that Zimbabweans sometime face that make them queue at shopping malls and boreholes in search of basic commodities as well as clean water, respectively. These conditions, at times, expose people to the risk of catching the deadly disease and, hence, the need for government to provide some of the basics like safe drinking-water to people in the comfort of their homes.

To promote the positive aspect of environmental hygiene during the COVID-19 era or in future, unforeseen deadly pandemics that may terrorise the world, there is need for urban health governance and this can be facilitated through:

- Reducing/eliminating corruption in government and other public structures to make sure that money dedicated for public health is used to develop the public health sector;

- Proper dissemination of vital information to the public relating to the disease and how to handle the pandemic as this makes people more aware and reduce its spread;
- Improving the health workers' environment and keeping them motivated through income and job-related rewards to reduce negative action, such as strikes and brain drain of skilled health personnel;
- The government to prioritising the health of the general public and in this regard, improving infrastructure and working conditions in public hospitals;
- The government and donor organisations working together in order to improve water accessibility in people's homes, so as to avoid the crowding of people in public;
- The decentralisation of essential health services, such as COVID-19 testing centres across the country, to enable people to get help from any part of the country;
- Improving testing infrastructure at airports; and
- The stricter controls by police to enforce lockdown regulations as a way to control the pandemic

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