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To cite this article: David Anafo, Ebenezer Owusu-Addo & Stephen Appiah Takyi (2021) Urban planning and public policy responses to the management of COVID-19 in Ghana, *Cities & Health*, 5:sup1, S280-S294, DOI: [10.1080/23748834.2021.1876392](https://doi.org/10.1080/23748834.2021.1876392)

To link to this article: <https://doi.org/10.1080/23748834.2021.1876392>



Published online: 04 Feb 2021.



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ORIGINAL SCHOLARSHIP



Urban planning and public policy responses to the management of COVID-19 in Ghana

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ABSTRACT

The global COVID-19 pandemic, with its associated issues of isolation, enhanced hygiene practices and contact tracing brought up a number of issues to the public domain, many of which bordered on the nexus between urban planning and public health. This paper sets out to examine how new ideas concerning the linkages between urban planning and public health revealed by the COVID-19 pandemic can be integrated into practice, moving forward; and how we might leverage on the crisis to build more just, healthier and liveable cities. Through a review of the literature on public policy responses to pandemics, it is observed that the current urban planning system in Ghana leaves so many people behind and exposes the lives of many to current and future disease pandemics. We propose an agenda for transformation which revolves around the co-evolution and co-creation of new forms of societal values that are less materialistic and individualistic but rather more egalitarian.

ARTICLE HISTORY

Received 2 October 2020
Accepted 12 January 2021

KEYWORDS

COVID-19; pandemics; urban Planning; public Policy; public Health

Introduction

Planning has been variously defined as the link between knowledge and action (Friedmann 1987), the guidance of future action (Forester 1989), storytelling about the future (Van Hulst 2012) and expectation management (Hartmann 2012). Tracing the historical evolution of planning practice, however, Wheeler (2004) indicates that the objectives of urban planning in the 1900s was basically about public health and sanitation, parks and housing regulation; from the 1920s issues of land use regulation/zoning and transportation planning emerged; the 1950s was about regional economic development; the 1970s was associated with environmental planning, public participation and sustainable development; in the 1990s environmental justice, new urbanism and smart growth became the mantra. Currently, urban planning is concerned with the creation of liveable communities which are walkable, diverse and with mixed uses; healthy cities which promote community and urban quality of life; and landscape ecology among others (Wheeler 2004).

Quite obviously urban planning is concerned with the negotiation of multiplicity (Hillier 2008). These range from the broader issue of land use to the specific issues of housing, transportation, water and sanitation, economic development, public health, education and open spaces. Meanwhile, the multiple realities of urban life are dynamic and always in a state of flux.

Therefore, planners must start to think of cities not in terms of known-knowns but also in terms of known-unknowns (May 2005). The known-unknowns that urban planning and public policy should help us deal with include emerging disease epidemics, natural disasters, risks and uncertainty which we have always known but are unable to predict with certainty when they are likely to manifest. As such urban planning, relying on past experiences, should help illuminate our understanding of, and responses to global pandemics without compromising on the dignity of humankind. This has become particularly important in the wake of the Coronavirus disease 2019 (also known as COVID-19).

Initially reported in Wuhan, Hubei Province, China in December 2019, the WHO declared the outbreak to be a public health emergency on 30 January 2020 and subsequently recognised it as a pandemic on 11 March 2020. As of 2 October 2020, when this paper was being finalised, there were about 34,522,161 reported cases of COVID-19 globally, in over 216 countries and territories, resulting in about 1,028,292 deaths (Worldometer 2020). The outbreak of COVID-19 in Ghana has followed the trajectory captured in Table 1.

Following the outbreak of the disease in Ghana and the subsequent events, a number of issues have been raised by social commentators and public policy makers. These issues focus on the lack of social housing, poor access to potable water, sanitation and

Table 1. COVID-19 trajectory in Ghana.

Date	Phase	Number	Remarks
12 March 2020	Initial outbreak	2	Vertical cases from Turkey and Norway
13 March 2020	Early phase	2	
14 March 2020	Early phase	2	
15 March 2020	Early phase	4	
			Ban on public gatherings, events and closure of schools
27 March 2020	Community spread	137	Partial lockdown of major Ghanaian cities for 2 weeks
2 October 2020	Stranglehold on the country	46,656	Ghana became the 6 th country in Africa with the greatest number of COVID-19 cases
11 January 2021		56,230	

Source: Culled from various Governmental Records (2020)

hygiene services, a weak and malfunctioning local governance system, rising inequality and poverty and a weak social support system among others. The arguments raised are that the majority of those who will be impacted by lockdowns are daily wage earners who could die of hunger, due to loss of income. Issues of human dignity, urban planning and public policy failures have also been variously raised.

This paper, therefore, attempts to examine the urban planning and public policy successes and failures in the Ghanaian context that weaken or improve our individual and collective responses to ‘known-unknowns’ of this world. It specifically explores how linkages between urban planning and public health as revealed by the COVID-19 pandemic can be integrated into practice, moving forward; and how we might leverage on the crisis to build more just, healthier and liveable cities. If planning is supposed to negotiate multiplicity in the urban space, then it must learn from the past, understand the present and forecast the future to enable us cope with disasters, disease epidemics, risks and uncertainties. The lessons for future urban planning practice will therefore be examined as well. This thinking resonates with Honey-Roses *et al.* (2020), when they ask the questions: how will the new ideas concerning the linkages between urban planning and public health revealed by the COVID-19 pandemic be integrated into practice, moving forward? And how might we leverage the crisis to build more just and healthier cities? We undertake this assessment using Ravetz’s (2020) framework on nexus of syndromes and connexus of synergies between various elements of public life. This allows us to explore the different inter-related policy failures/successes in the Ghanaian context that contribute to poor public health and lack of pandemic preparedness, particularly as they relate to social, technological, economic, ecological, political (STEEP) issues of not just COVID-19 but any future pandemics.

The paper is divided into five sections. Following the introduction is a review of the nexus between

urban planning, human dignity and public health. This is immediately followed by a discussion on epidemics preparedness in urban settings and COVID-19, and sustainable urban policy and governance of epidemics. Section three discusses the methods used to generate data for the study. Section 4 looks at urban planning failures/successes in Ghana with the potential to foster the spread of pandemics from the perspective of housing, public transport, health services and water, sanitation and hygiene as these were critical to government’s policy response to the outbreak of COVID-19 in Ghana. These are then tied together by a discussion on decentralised service provision, leading to a conclusion.

Urban planning, human dignity and public health

The practice of urban planning and public health are interrelated, and this can be attributed to the emergence of the concept of sustainable city development and the management of global health crisis. While the goal of urban planning is to deliver safe, healthy and attractive places to live, that of public health is to promote the health and wellbeing of the population. Urban planning and public health are thus, intrinsically linked as they share common missions and perspectives – improving human wellbeing. Historically, the professions of urban planning and public health take their roots from the same source – a direct response to overcrowding and lack of adequate sewerage and water infrastructure during the industrial revolution in the 19th century (Chapman 2010, Crawford *et al.* 2010). De La Barra (2000) observes that as towns became ostensibly healthier in the early part of the 20th century, little attention was paid to the linkage between urban planning and public health. In industrialised countries, in particular, the biomedical of health became the focus of public health, while political forces led to the supremacy of purely economic and austerity measures in urban planning (Croucher *et al.* 2007, Miller 2016). The unintended consequence of this trajectory was the severing of the umbilical cord between urban planning and public health, with different professions working in silos during the latter part of the 20th century (Orme 2007, Rao *et al.* 2011, Corburn 2017).

In recent times, the link between urban planning and public health is magnified by the burgeoning evidence indicating that the built environment constitutes a key determinant of health alongside key characteristics – social and economic variables and lifestyles (Prüss-Üstün *et al.* 2016, van den Bosch and Sang 2017). Further, the sharp increase in non-communicable diseases such as diabetes, cardiovascular diseases, asthma, chronic depression, and road traffic injuries are linked to particular urban social

and environmental conditions (Rao *et al.* 2011, Flies *et al.* 2019, World Health Organization 2019). Urban planning is thus, deeply implicated in both the lack of human dignity in the urban space (Murillo *et al.* 2012), and the rising health crisis including the creation of the 'obesogenic environment'. As observed by the World Health Organisation (WHO), the conditions in which people live influence their health and quality of life, and that the most prominent non-communicable diseases are linked to common risk factors that have economic, social, gender, behavioural and environmental determinants (Commission on Social Determinants of Health 2008, Marmot *et al.* 2008). This suggests that cities have powers, and we ignore the urban space at our peril.

While the World Health Organisation's Healthy Cities programme (Barton and Grant 2013) initiated in 1986 has become a fulcrum for 'healthy urban planning' in Europe, its implementation has been patchy in Africa. Njoh (2016) notes that in Africa, the social and environmental determinants of health have received limited attention in both urban planning and public health discourses. In view of this, there has been a renewed call for collaborative working across the

disciplines of urban planning and public health in Africa (Cobbinah *et al.* 2020). This call is informed by the shared vision that a strong partnership between urban planners and public health professionals can result in the creation of healthier and liveable communities (Carmichael *et al.* 2013, Njoh 2016, Schneider and Greenberg 2018).

The link between urban planning or spatial planning and health is further reflected in the social determinants of health model (Figure 1).

Good urban planning can thus help address the broader determinants of health and promote human dignity in the age of urban civilisation (UN-Habitat & World Health Organization, 2020). Effective strategic integration of health and planning is thus critical. Moving forward, within the discipline of urban planning, there is the need to develop planning frameworks which advance public health concerns in a spatial policy context. Further, there is an urgent need for an in-depth assessment of the role of the planning and design of human habitation in promoting public health.

Similarly, within the public health space, the social determinants of health model (Figure 1) shows that

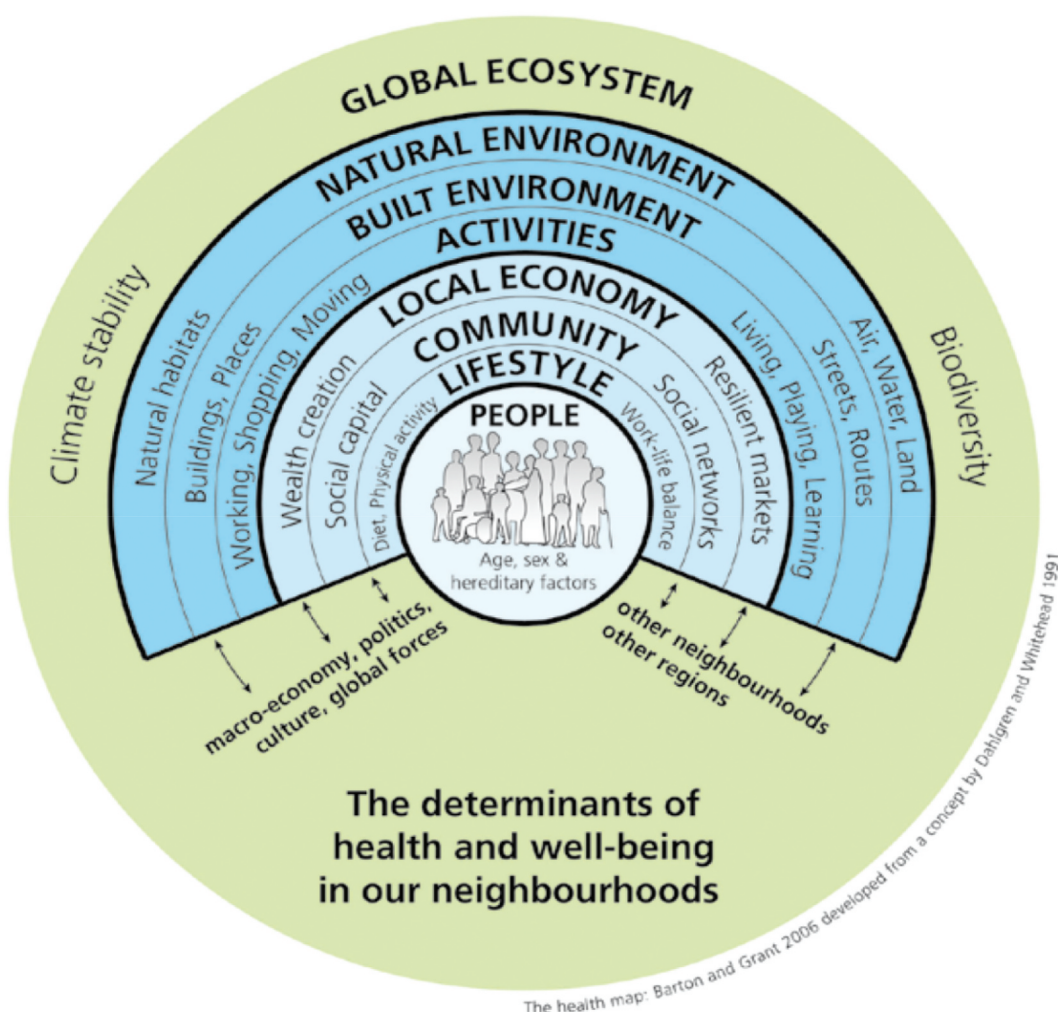


Figure 1. Health map for the local human habitat (Barton and Grant 2006).

promoting health is not the preserve of the health sector. The International Conference on Primary Health Care held in Alma Ata in 1978 also moved the responsibility for health beyond the health sector by stressing on 'the inclusion and strengthening of primary health measures within national development plans, with special emphasis on urban and rural development programs' (World Health Organization 1978). Later, the Ottawa Charter on Health Promotion (WHO 1986) extended this notion when it recognised education, income, peace, nutrition, housing, stable ecosystems, sustainable resources, social justice and equity as prerequisites for health.

This means that public health professionals cannot continue to do business as usual by focusing solely on behaviour change programmes rooted in the biomedical approach to health promotion. Researchers such as Mackay (2020) and Hunter-Adams (2018) have argued that assessing the health status of urban dwellers should go beyond the behavioral view to include important social, economic and environmental factors such as poverty in shaping risk profiles, social determinants of the urban food, health and infrastructural environment. What is needed now is a more radical and fundamental reassessment of the ways in which social, economic and environmental impacts shape and are shaped by spatial planning and hence the need to see urban planning as a social determinant of health. This is in line with WHO's definition of health as enshrined in its constitution in 1948 (World Health Organization 1995, p. 1), which is 'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity. The enjoyment of the highest attainable standard of health is one of the fundamental rights of every human being, without distinction of race, religion, political belief, economic or social condition'. Public health professionals thus need to move beyond the behavioural approach to health promotion to concomitantly engage with urban planners in ensuring that health as a resource, is created by and enjoyed in the urban space.

Of importance to both policy and practice within the context of the sustainable development goals (SDGs) is that 'peoples' health and community well-being must be primary priorities for both urban planners and public health professionals. The integration of health and planning would require a fundamental shift in organisational structures and remits as well as a realignment of funding mechanisms. As observed by Pilkington *et al.* (2008), the change called for here can be materialised through knowledge exchange and a reflective discourse on values between planners and public health professionals. This amplifies the need for Ravetz's (2020) connexus of synergies between urban, political, social, technology, ecology and economic issues which can have wider implications for pandemic governance. The use and application of

common tools such as geographic analyses and health impact assessments can help deepen the bond between urban planning and public health.

Epidemic preparedness in urban settings and COVID-19

Globally, the COVID-19 pandemic has served as a good lesson for policy makers to prepare for pandemics in the planning and management of urban areas. Urban planners can effectively respond to these epidemics and pandemics by adequately preparing for such emergency situations, putting structures for emergency planning in place, whilst at the same time managing and designing cities with emergency in mind. The achievement of these depend on factors such as political will, financial investment and multi-disciplinary approach to planning (Jain *et al.* 2018). The COVID-19 pandemic has exposed planning systems worldwide. The pandemic has clearly shown that there are inadequacies in both national and international emergency preparedness and response (Jain *et al.* 2018). This situation has resulted in the need to enhance national and global efforts towards emergency preparedness against epidemics.

Considering the potential impact of urban planning on public health, health should be at the centre of urban planning policies. This is particularly important as it appears that emerging infectious diseases such as SARS, H1N1, and Zika virus, either originated from urban centres or propagated due to urbanisation (Jain *et al.* 2018, Lee *et al.* 2020). This can be explained by the multiplicity of risk factors for infectious diseases found in urban settings including cities as hubs of international travel and trade, poor housing, weak urban governance, limited access to infrastructure and services, and urban informality (Keil 2009, Neiderud 2015, Boyce *et al.* 2019).

The recent COVID-19 pandemic also has an urban character with increased cases found in urban areas. With the initial outbreak of the disease in Wuhan city, China, it spread to major cities worldwide, particularly cities in the United States of America, the current epicentre of the pandemic (Ramírez and Lee 2020), and countries with travel connections to China (World Health Organization 2020a). Ghana, the focus for this paper for instance, at the time when a decision was taken to write this manuscript (23 June 2020) had a COVID-19 case count of 14,154 of which Accra alone (the largest city in the country) accounted for 67% of the cases. Similarly, public spaces, which are a defining feature of cities have become ghost places in the wake of the COVID-19 pandemic. This is as a result of the various restrictions imposed by the government and public health departments including restrictions on the use of public space, confinement, social distancing and the practice

of enhanced hygiene as preventive measures to contain the spread of the pandemic. Other potential impacts of the pandemic within urban settings in Ghana include urban density (i.e. how cities can accommodate social distancing recommendations, self-isolation or quarantine), energy, transportation, retail, and water and sanitation needs. This is in line with the World Health Organization (2020b) observation that the COVID-19 pandemic has brought to the fore the devastating effects of poor urban planning on public health, particularly in informal urban areas.

Further, major cities in Ghana such as Accra, Tema and Kumasi, which are well-known for their active street life became ghost cities as city-dwellers stayed home for the collective public good during the partial lockdown imposed by the government in the early stages of the pandemic. This has led to a number of practitioners including urban planners, architects, landscape managers, public health managers, and journalists raising concerns about how cities can be better organised to effectively respond to epidemics, and how the COVID-19 pandemic will transform our relationship with public space. This means that while there are still uncertainties around the dynamics of the COVID-19 pandemic, what is clear is that it has unearthed how unprepared cities are in terms of dealing decisively with public health emergencies. As noted by Bell *et al.* (2009), urban settings in both high-income and low- and middle-income countries are uniquely vulnerable to public health crises. The issues raised here align with the two fundamental questions posed by Honey-Roses *et al.* (2020) on the one hand and Ravetz (2020) on the other on the interlinked nature of various policy issues to the emergence and propagation of pandemics. As argued by Lee *et al.* (2020), it is more cost effective to incorporate epidemic preparedness systems such as effective transport networks, and safe and improved sanitation into urban designs than to take reactive measures to deal with public health emergencies after they have occurred.

Sustainable urban policy and governance of epidemics

The rapid urbanization of the world calls for the need for sustainable and innovative policy interventions for urban centres. For example, the Department of Economic and Social Affairs (2018) has predicted that 68% of the world population will be living in urban centres by 2050. Overall, the congested nature of urban areas, the growing slums in urban centres and the complex nature of managing urban centres especially, in the global south calls for the need for policy attention to urban centres. Urban centres as it is unravelling under COVID-19 are enclaves within which disease

epidemics easily fester. It is emerging that globally, urban centres as opposed to rural areas are more susceptible to the rapid spread of the COVID-19 pandemic, raising questions over the resilience or otherwise of urban areas. Making cities resilient to global emergencies, requires that they are planned sustainably.

The International Policy Centre for Inclusive Growth (2016) notes that cities that are sustainably planned and efficiently managed serve as engines of economic growth, social prosperity and ecological sustainability. Sustainable urban policies therefore incorporate the economic, social and environmental dimensions of city development. According to the National Urban Policy Framework (2012) despite the rapid urban growth in Ghana, up until 2012, the country lacked a comprehensive urban policy that would promote sustainable development of urban centres. While the formulation and implementation of the National Urban Policy tried to address this gap, the outbreak of, and response to COVID-19 in Ghana show the persistence of serious urban sustainability issues. Overall, Ghana could not lockdown for more than three weeks due to the dominance of the informal sector (economic), rapid growth of slums in urban areas (social) and weak social structures and support systems.

Ghana has 51% of its population currently residing in urban areas with a general growth rate of 2.3% (Ghana Statistical Service 2012). There is therefore the need to redefine the paradigm for public health interventions through the formulation and implementation of innovative and sustainable policies. Despite technological advancement and growing knowledge in the medical field, the lessons learnt from COVID-19 has brought to the need to adopt new approaches that take urban determinants of health into consideration and this constitutes the social aspects of urban planning. Additionally, the widening disparity between the urban poor and the urban rich especially in the global south has contributed to increasing urban health inequities. According to Katz *et al.* (2012), there are major shortfalls in the existing tools and policies used for global governance of urban health risks. Overall, there is lack of formal mechanisms to strengthen collaboration and communication among various stakeholders (Katz *et al.* 2012). Also, there is a disconnect between urban governance strategies at the various levels including the local, national and international levels (Katz *et al.* 2012). The way forward for the management of future pandemics is the formulation and implementation of sustainable urban policies that are multi-level, multi-disciplinary and inter-disciplinary and incorporate the dimensions of sustainability.

Data and methods

The data used for this study were gathered primarily from databases and publicly available sources. Databases searched include ERIC, EBSCO, ScienceDirect, Medline, ProQuest and JSTOR. We also searched grey literature sources such as Google (and Google Scholar) and PDF Search. The search terms used include ‘urban planning failures’, ‘public policy responses’, ‘planning failures’ ‘urban planning and public health’, and ‘urban planning and COVID-19’.

This search processes followed Cronin et al.’s (2008) step by step approach to the classical literature review. These steps entailed (1) initial review of relevant documents on urban planning failures in Ghana; (2) selection of relevant reports and literature for analysis; and (3) analysis of obtained documents. In summary, the research process commenced with the identification of themes used to assess the urban planning failures/successes that weaken/strengthen Ghana’s responses to COVID-19. This was followed by the formulation of issue questions and parameters based on the identified themes; sorting of data based on the identified themes; comparison of the data collected with the themes to evaluate the urban planning failures/successes that weaken/strengthen Ghana’s responses to COVID-19. Other secondary data sources included media reportage, policy debates and documents, presidential addresses and other government documents.

Based on the literature reviewed, the authors discussed the themes that were generated under

sectors such as housing, public transport, health services, water, sanitation and hygiene, and decentralised service provision. Overall, the themes that were used for the analysis include urban policy failures/successes and the management of pandemics as regards decentralized service provision, linkages among sectors, collaboration between the private and public sector and failure of policy interventions to understand the realities of people’s lives.

The present study focuses on public policy failures, successes and the management of pandemics in the Ghanaian context. The emphasis of the study on Ghana limits the generalizability of the findings of this research to countries in the global north that have similar urban characteristics and policy approaches like that of Ghana. Going forward, there is the need for similar studies that focus on the global north since the urban planning failures/successes in the global south are significantly different from those of the global north. The summary of the analytical framework for this study is presented in Table 2.

Findings of the study

Urban planning and public policy failures and successes from the perspective of the housing sector

International human rights law recognises housing as a human right because improved access to housing has implications for human dignity and health. Boamah (2011) notes that where the housing sector is efficient

Table 2. Summary of analytical framework.

Description	Response that worked	Response that did not have desired effect
Sector discussions (Housing, Public transport, Health Services, Water, Sanitation and Hygiene).	<ul style="list-style-type: none"> • Enforcement of lockdown • Government successfully negotiated with intra city transport operators to reduce the number of passengers per travel • Intercity transport operators also cooperated with the policy makers to halt operations during the lock down. • Collaboration between the public and private sector to establish the Ghana COVID-19 Private Sector Fund 	<ul style="list-style-type: none"> • Lack of policy coordination across sectors. For example, not considering the weaknesses in the housing and transport sectors led to the weak adherence to social distancing protocols in compound houses • Weak enforcement of COVID-19 protocols and transport stations. • Over reliance of donor support for health care delivery • Spatial inequality in the distribution of health facilities and personnel • The free water policy only benefited the urban elite who had physical and economic access to water.
Overarching component of success or failure (urban policy failures and the management of pandemics, decentralized service provision, weak linkages among sectors and failure of policy interventions to understand the realities of people’s lives)	<ul style="list-style-type: none"> • Collaboration between the public and private sectors • The use of educational and research institutions in the fight against COVID-19. • The use of the media to disseminate information to the public 	<ul style="list-style-type: none"> • Using weak decentralized structures to enforce COVID-19 protocols • Inefficient management and weak monitoring systems led to corruption such as the sale of PPE • The implementation of the lockdown disregarded and misunderstood ways of living of the urban poor
Recommendations/implications for future pandemic preparedness/ response and better urban- & health- planning	<ul style="list-style-type: none"> • Decentralise budgets and decision-making and improve the legislative, financial, logistical and human resource capacity of decentralized departments • Design responses for informal livelihoods or design strategies across multiple types of economic activity – employed, self-employed, informal, food-traders, healthcare-related ... • Consider landlords, those in shared housing with shared services, those in own villas etc separately ... 	

and able to provide shelter for the population, economic growth and social stability will be enhanced. Improved access to housing can also enhance local and national authorities' ability to effectively respond to and control disease outbreak. Inadequacies in the housing sector results in stress amongst members of households, poor health conditions, poor performance of school children and workers, and poor security. In the era of COVID-19, the weaknesses in the housing sector in Ghana has made it difficult for city authorities to enforce social distancing protocols. Indeed, a dynamic and vibrant housing sector is crucial to both local and national development. Nonetheless, these benefits cannot be actualized without the formulation and implementation of a housing policy that is dynamic and effective. Housing policies provide the opportunity to address the housing needs of the population, develop a sustainable source of financing housing, ensure the provision of adequate housing, be responsive to the changing housing needs of the population, and ensure planned and well-ordered development (Boamah 2011). It also ensures access to facilities and services such as quality water, proper waste management, electricity, security, and recreation. Over the years, countries in both the global south and north have formulated and implemented policies to govern the housing sector. Notwithstanding, these countries are still confronted with enormous housing challenges due to policy failures and setbacks.

Since independence, the Government of Ghana has formulated and implemented several housing policies. Overall, the implementation of these policies has been ineffective. Boamah (2011) for example, notes that despite the implementation of these policies, the housing sector in Ghana is characterized by problems such as inadequate housing stock, overcrowding, congestion, and housing decay. Afrane *et al.* (2016) estimate that Ghana had a housing deficit of about 1.7 million units requiring that 170,000 housing units are built annually to reduce the deficit. Currently, however, Ofori (2019) observes that the housing deficit stands at about 2,847,244 housing units. The situation is worsened by the observation that there has been a considerable increase in the proportion of inadequate and insecure structures that are used as housing units such as kiosks/containers, tents, shops/offices. The proportion of kiosks/containers used as accommodation in metropolitan areas grew from 44.5% in 2000 to 62% in 2010, and from 17.5 to 29.3% in municipal areas (within the same period) (Ghana Statistical Service 2012). However, the districts experienced a significant decline in the proportion of kiosks used as accommodation. This shows that the problem of informal housing is particularly concentrated in urban centres such as Accra and Kumasi (UN-Habitat 2011).

Furthermore, because these dwellings do not have adequate access to facilities and services that make up

quality housing, the occupants become vulnerable to health risks and pandemics such as COVID-19, as well as foster its spread. The poor housing situation of the country is as a result of the lack of a comprehensive National Housing Policy Framework (NHPF) though there are a number of legal and regulatory frameworks related to housing (UN-Habitat 2011, Ghana Statistical Service 2012). The UN-Habitat (2011) and Ghana Statistical Service (2012) point out that Ghana's family housing system especially in urban centres is very crucial as it serves as informal social safety net that helps control homelessness, regardless of the fact that most of these structures are in poor conditions. Additionally, social housing is completely absent in the country, which implies that improving one's housing condition depends solely on the individual.

The preceding issues indicate that the current housing situation of Ghana is considerably deficient. The housing situation holds back the ability of the country to effectively respond to and control disease pandemics such as the COVID-19. The housing sector of Ghana thus have very little positive impact on COVID-19, especially in urban centres including Accra and Kumasi – the epicentres for the disease. In response to the identified policy gaps and housing problems, there is the urgent need for policy interventions in areas such as the development of the housing finance market, establishing community-based housing finance schemes, enforcement of planning controls and confining government's role to regulating the housing market rather than assuming housing developer and financier responsibilities (Boamah, 2011). On 30 March 2020, the President of Ghana imposed a lock down on Accra and Kumasi which are the two major cities in the country. However, this lock down policy response failed to take into consideration the weaknesses in the housing sector. For example, according to Asante and Ehwi (2020), compound houses constitute 57% of Ghana's total housing stocks. These compound houses are usually occupied by between 8 to 15 households; thus, making the implementation of social distancing protocols ineffective in such houses (Asante and Ehwi 2020). Despite the fact that the government was able to enforce the lockdown by making sure people stayed at their homes, the inability of the policy makers to consider the implication of the dominance of compound housing to the adherence of social distancing protocols made staying at home especially among the urban poor counterproductive. Also, within the housing sector, the adverse economic effects of COVID-19 limited the ability of tenants especially those who lost their jobs to pay their rent. The policy makers, however, failed to put in place strategies that will help deal with this problem. The issues that relate to health care delivery are

multi-faceted; thus, there is the need to adopt a 'connexus' approach to healthcare delivery.

Urban planning and public policy failures and successes from the perspective of the public transport sector

The transport sector is another important sector of every country's urban system and functioning. The sector plays a crucial role in providing physical access to health care services, education, markets and employment opportunities, residential areas, leisure and recreation centres. Anin *et al.* (2013) note that effective transportation system reflects in the availability of efficient logistic system and socio-economic development at large. However, the transport sector in Ghana is confronted with problems such as inadequate transport infrastructure, unorganized and a poor public transport system.

One key feature of an effective and efficient public transport system is a systematic integration of all public transport modes; that is, planning the public transport system such that all transport modes are properly unified and coordinated rather than fragmented (Uspalyte-Vitkuniene & Burinskiene, 2008, Saliara 2014, Solecka and Žak 2014, Nag, Manoj, Goswami, & Bharule, 2019). However, many cities around the world especially in the global south have failed in this regard (Dewar and Todeschini 2017). According to Dewar and Todeschini (2017), African cities have not been capable of integrating the different transport modes in an efficient manner. He posits that the various public transport modes such as trains, buses, Kombi-taxi and the new BRT system, continue to compete with each other for the same routes with no coordination among them. This is the result of an urban planning system that has been unable to integrate the various modes of urban transport.

This situation is not different from what is happening in urban centres in Ghana. Major cities such as Accra and Kumasi do not have any form of integration of the various modes of public transport. Furthermore, the railway transport (being one of the most reliable and better organised modes of land transport with a higher carrying capacity) system in Ghana has deteriorated as a result of lack of maintenance putting it in a state of disrepair; thereby, making road transport the main public land transport mode in the country (National Development Planning Commission 2017). On the contrary Agyeman (2015), indicates that trotros, being affordable, readily available and accessible public transport, are patronised the most in the urban centres of the country, followed by taxis. Agyemang (2015) describes trotros as privately owned minibuses that operate along fixed routes in the city centre and only move when the minibuses are filled to capacity.

The trotro transport system, however, raises salient issues such as poor operational and safety standards and personal security, as a result of weak regulation of trotro transport unions (Agyemang 2015). The public transport system in Ghana is therefore considerably deficient, and this has adversely affected the ability of city authorities to enforce social distancing protocols during the COVID-19 outbreak. With the current public transport situation, the infectious virus would easily spread. The difficulty in enforcing social distancing protocols in a trotro vehicle is due to their disorganized and unregulated nature. Anin *et al.* (2013) observe that Ghana's traffic management system is not effective whilst the mass transit services can barely meet travel demands contributing to the transportation challenges. The novel COVID-19 outbreak therefore serves as a reminder of the need to address the failures in the public transport system. Despite the fact that the 2008 National Transport Policy has been in place for more than a decade, its implementation has been ineffective and the problems confronting the sector persist. There is the need for city authorities to improve on the existing transport infrastructure and expand the mass transit services in urban centres.

In an attempt to curb the spread of COVID-19, the Government of Ghana successfully negotiated with the various stakeholders in the transportation sector to reduce the number of passengers they pick per travel. Also, intercity transport operators cooperated with the government to stop their operations during the lockdown period. This adversely affected the income flow of transport owners and operators. However, Bonful *et al.* (2020) note that there were still issues with compliance to COVID-19 protocols in some transport stations. This had implications for the enforcement of government directives such as the provision of alcohol-based sanitizers, hand washing facilities and enforcement of social distancing protocols (Bonful *et al.* 2020).

Urban planning and public policy failures and successes from the perspective of the health sector

The health sector plays an important role in the holistic development of every country. The sector performs a crucial role in the management and control of diseases generally, and pandemics, when they emerge. The effective performance of the sector is therefore paramount to ensuring the wellbeing of the population. According to the World Health Organization (2019), at least half of the world's population are not receiving the essential health services they require, with the African Region having the lowest coverage. The World Health Organization (2019) further submits that for a health system to function adequately, there is the need for a qualified workforce that is available, equitably distributed and accessible by the population. However, low-

income countries suffer a dramatic shortage in this regard; where low-income countries form 90% of countries who have less than 10 doctors per 10,000 population, and 93% of low-income countries have less than 40 nurses and midwives per 10,000 population (World Health Organisation, 2019).

Further, other issues that promote health care delivery include; access to essential medicines in the right quantity and quality at all times; adequate research and development into improved health products and processes; and strong capacity in emergency preparedness (World Health Organization 2019). However, low-income countries tend to fall considerably short in these aspects. This indicates that countries in the global south have serious challenges with regards to health capacity and this has implications for the ability of these countries to successfully respond to and control epidemics.

Ghana's health sector is undoubtedly one of the vibrant and forthcoming sectors of the country. The Ghana Health Service, a sector agency, is responsible for the provision of promotive, preventive, curative and rehabilitative health services to the entire population at all levels (Owusu-Addo *et al.* 2017). In an attempt to enhance health care delivery, the sector has developed a number of policies and programmes. These include the National Health Insurance Scheme (NHIS), Community-based Health Services and Planning (CHPS) policy, E-Health, Health Sector Staffing Norm, and Drug policy, among others. The CHPS policy, for instance, focuses on expanding access to health services in every part of the country especially, rural communities. This policy facilitated the increase in the number of functional CHPS zones by 28% from 2015 to 2017. Nonetheless, the targeted increase has not been achieved (Ministry of Health 2017).

The NHIS which was introduced with the aim of reducing the health budgets and burden of Ghanaians especially the poor and vulnerable has not been very forthcoming in achieving its aim in recent years due to challenges with resource mobilisation and disbursement. In 2017, Ghana achieved doctor to population ratio and nurse to population ratio targets of 1:9,750 and 1:1000, respectively (Ministry of Health 2017). However, these fall short of WHO's recommendations and can be improved since there are medical doctors and nurses in Ghana who are unemployed due to the austerity measures being taken to reduce government spending on public sector remuneration. This shows that, although the country is making steady progress in the delivery of quality health services, these improvements do not guarantee an effective response to and management of public health emergencies such as the novel COVID-19 outbreak.

Interestingly, the COVID-19 pandemic has also brought to the fore the inherent weaknesses associated

with over-reliance of health systems on donor support programmes. In Ghana, essential interventions such as vaccination, sexual and reproductive health services, HIV and malaria prevention programmes, which are largely funded through donor support are being compromised as donors shift attention to COVID-19 prevention and control. Also, issues of spatial inequity when it comes to the distribution of health facilities and personnel threatened the fight against COVID-19 especially in deprived areas. For example, according to the School of Public Health (2018), 70.4% of medical officers in Ghana are located in Accra and Kumasi. Also, due to weak monitoring and evaluation systems, the health sector continues to face problems such as inefficiencies in the management structure and corruption. For example, an investigation conducted by the BBC Africa eye during the peak of COVID-19 in Ghana showed that some healthcare workers have been selling Personal Protective Equipment for personal gains. This calls for the need to conceptualise health systems more holistically, taking into account effective approaches to dealing with public health emergencies such as COVID-19, so as to guarantee that continued access to essential health services is not compromised. There is the need for effective monitoring and evaluation systems within the health care management systems. In this regard, as part of the processes towards self-reliance within the health sector, the President of Ghana in his eighth address to the nation on government's responses to the COVID-19 pandemic announced a new era for the health sector by committing to constructing 88 district hospitals, six regional hospitals and three infectious disease centres, saying that 'the pandemic had highlighted weaknesses in the system stemming from under-investment' (Ministry of Health 2020). This is a positive development that will help strengthen the public health delivery system. However, the haste with which it is being pursued may lead to weak integration with the overall urban and national planning systems.

The Government of Ghana collaborated with the private sector to establish the Ghana COVID-19 Private Sector Fund to provide financial support to fight the pandemic. Through this fund 6000 urban poor were fed in Accra and Kumasi from 1 April 2020 to 12 April 2020. Also, the fund was used to build the Ghana Infectious Disease Centre at a cost of US\$7.5 million. The 100-bed capacity Centre which is the first infectious disease Centre in Ghana was built within 100 days. Additionally, the government of Ghana successfully collaborated with the Noguchi Memorial Institute for Medical Research and the Kumasi Centre for Collaborative Research in Tropical Medicine to ramp up testing capacity. These two research centers which were affiliated to the University of Ghana and the Kwame Nkrumah University of Science and

Technology were responsible for the COVID-19 testing and research. The policy responses to the COVID-19 pandemic clearly show how the collaboration or ‘connexus’ between actors such as the private, academic institutions and public sector can help improve Ghana’s health sector and other sectors of the economy.

Urban planning and public policy failures and successes from the perspective of the water, sanitation and hygiene

COVID-19 and the protocols proposed by health experts require the availability and uninterrupted supply of water, sanitation and hygiene services to the generality of the population as well as the observance of hygienic practices (WHO and UNICEF 2020). It is further observed that ensuring consistent water, sanitation, hygiene and waste management practices in communities, homes, schools, marketplaces, and healthcare facilities can significantly reduce human-to-human transmission of pathogens including SARS-CoV-2, the virus that causes COVID-19 (WHO and UNICEF 2020). During the peak of the COVID-19 outbreak the Government of Ghana therefore decided to make water freely available to the public.

While this initiative is laudable, particularly in the wake of the deadly COVID-19 pandemic, it brings to the fore a number of urban planning and policy challenges. This is so because the COVID-19 protocols require hand washing under running water and not just any other source of water. The most recent Ghana Living Standards Survey carried out by the Ghana Statistical Service (2019) indicates that the main sources of water for general use by Ghanaians are pipe borne water (48.5%), wells (36.4%), streams/rivers (5.2%) and others i.e. vendor supplied (9.9%). Out of the total of 48.5% of the population that relies on pipe borne water, 13.7% rely on public stand pipes, pipe-borne outside dwelling but from a neighbour’s house (14.5%), pipe-borne outside dwelling but not on compound (9.8%), with pipe-borne inside dwelling being 10.6% (Ghana Statistical Service 2019). Given these statistics, it is obvious that the president’s benevolence in the wake of the pandemic will only serve the interest of a select few, most of whom are wealthy, making the policy regressive and lacking the potential to enhance hygiene practices and help reduce the rate of spread.

The areas of sanitation and hygiene are not any better. In terms of access to toilet facilities, the Ghana Statistical Service (2019) indicates that only 28.6% of urban dwellers have access to Water Closet toilets in their residence. The rest either depend on public latrines or resort to other unsanitary practices, including open defecation. Meanwhile, handwashing with soap under running water, access to safe water and the safe management of

human excreta are essential for good health and human wellbeing (WHO and UNICEF 2017).

Urban planning and public policy need to address issues of water, sanitation and hygiene more vigorously in a post COVID-19 Ghana. Urban planners and local governments need to ensure that permits are not granted for building designs for which in-built arrangements are not made for water, proper sanitary facilities and related ancillary services. Already existing structures that lack these facilities should be upgraded through consciously designed and implemented urban upgrading programmes. Local governments should also partner with agencies such as the Community Water and Sanitation Agency (CWSA) to find innovative solutions to water and sanitation challenges in small and medium towns. This can be achieved through the encouragement of grassroots innovations to identify locally available solutions to address the water, sanitation and hygiene issues plaguing our cities and country. COVID-19 has already shown that given the right environment, the grassroots can innovate to deal with our challenges.

Structural response to service delivery in Ghana through decentralised service provision

Decentralisation of governance functions have gained global traction and widespread adoption because of its many advantages. Decentralisation at the very least helps deepen participation and improve the provision of basic social services to the underserved regions of a country. Under pandemics such as COVID-19, decentralised service provision can help improve the observance of social distancing protocols and the provision and use of enhanced hygiene practices. The areas of critical need and the poorest segments of society can also be easily identified, tracked and supported in a much better manner.

Unfortunately, although decentralisation gained global prominence some three or four decades ago (Lambright 2011, McLaverty 2017) many countries, particularly in Africa, including Ghana are observed to be recentralising government functions (Ayee 2008, Anafo 2019). Many reasons have been suggested as accounting for the reversal. Mainly, the decentralisation legislations are said to have provisions that allow for a recapture of power from the periphery. Some of the loopholes identified in the literature include: provisions requiring ministry sign-off on budgets and annual plans; poorly trained local staff resulting in poor functioning of local authorities; poorly designed local institutions, militating against effective local decision-making; and the absence of an effective local political process to engender participation and accountability in the local governance processes (Eaton *et al.* 2011, Anafo 2019).

COVID-19, more than anything else, however, highlights the importance of decentralised service provision and requires of governments to initiate conscious efforts at deepening decentralised governance. The WHO regional office for Africa, has for example argued that to accelerate progress of the COVID-19 response, there is the need to decentralise and scale-up capacities for public health and other interventions at all levels (WHO Africa 2020). For Ghana as a country to succeed in our response to current and future pandemics there is the need for a return to the basics of decentralisation. This entails the adoption of an open system perspective to governance, that deepens political, administrative and fiscal decentralisation. Such a system must necessarily entail local democracy, devolution of powers to elected local bodies enjoying relative autonomy; local governance, based on civil society participation and downward accountability; local economic development including pro-poor decentralised service delivery; and state modernization and overall public sector reform (European Commission 2007). Done this way, Ghana and similar other countries will be better positioned through their decentralised structures to respond effectively to future pandemics in a better way than is currently the case under COVID-19.

The enforcement of COVID-19 protocols cannot be done using the centralized approach. The implementation of most government directives with regards to the COVID-19 protocols were therefore done by the Metropolitan, Municipal and District Assemblies. In an attempt to implement these government directives, these Metropolitan, Municipal and District Assemblies developed COVID-19 emergency response action plans. However, due to the weak institutional capacity of the local governance structures, the Metropolitan, Municipal and District Assemblies found it difficult to implement these directives. For example, improving

the capacity of district hospitals could have brought the testing and treatment of COVID-19 patients closer to the people. The presence of the decentralized structure in Ghana presents as important opportunity for policy makers to fight the pandemic; however, the relevant decentralized departments and agencies have to be supported with the requisite legislative, financial, logistical and human resources. The information services department at the local level for example could have helped in educating the public about COVID-19 in their respective languages if provided with the requisite support.

A new urban agenda for governance of epidemics

There is no doubt that the world would from time to time have to deal with one issue or the other. If it is not global financial meltdown, it is extreme poverty and hunger. If it is not climate change, then it could be a pandemic of the sort being experienced with the COVID-19. Mostly, humanity has risen to the occasion by harnessing various capitals to address our common maladies.

Pandemics, as the history shows are known-unknowns and will continue to be with us. What is required, however, is how well we can organise our activities in space to be ready at all times to respond to and mitigate the impacts of pandemics should they arise. Having analysed the Ghanaian situation, the conviction is that there is no need to reinvent the wheel for Ghana or any other country for that matter. A new urban agenda for the management and governance of pandemics should therefore be modelled along Ravetz's (2020) idea of a movement away from the nexus of syndromes to the connexus of synergies (See Figure 2).

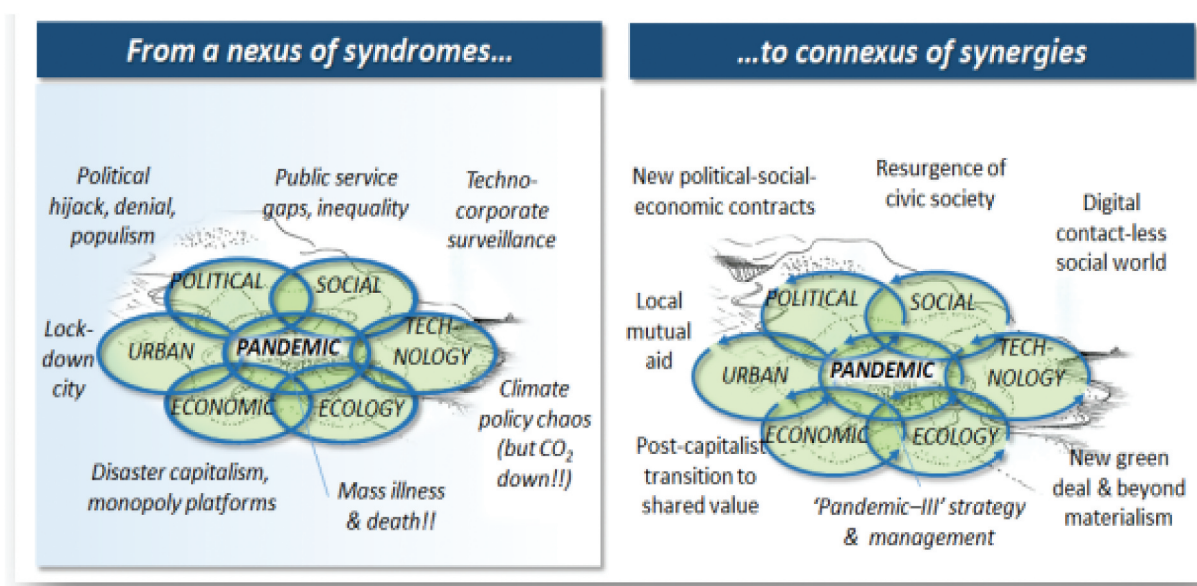


Figure 2. Pandemic transformations agenda. Source: Ravetz (2020)

Ravetz (2020) basically argues that to unpack our abilities for societal transformation and evolution in response to global pandemics, we need to pay attention to the material facts associated with the social, technology, economic, ecological, political (STEEP) issues of not just COVID-19 but any future pandemics. He indicates that transformation will require establishing and understanding the many cross connections between these elements so as to map out synergies and plant the seeds for transformation.

Within the social domain as espoused by Ravetz (2020) COVID-19 makes it impossible for direct social interactions while also exposing the challenges associated with social services as well as inequality and exclusion. The technology arena is experiencing growth spurred by the emergence of contactless community run on digital platforms and networks while local businesses are at the brink. In the economic arena, global GDP has fallen, with accompanying challenges for the unemployed, the sick, the uninsured and the homeless, while opportunities are emerging in the area of part-time and home working. Ecologically, the pandemic helped improve the health of the skies for the first time in a long while, resulting in some optimism that new forms of green deals and non-material lifestyles could emerge. Politically, the state has had to step into prop-up businesses and workers in many different ways. In the area of science and knowledge, most countries have seen the wisdom to redouble efforts at knowledge generation and dissemination and depending on expert practice resulting from resurgence of trust and confidence in scientific practice. All this border on how well we organise our activities in space, hence the centrality of planning to this discourse.

Conclusively, an urban agenda for health governance cannot ignore the intricate connections between these STEEP elements. What is required therefore is an urban agenda that is not operated from a silo department but collaborates with various actors in the urban space to create the needed 'connexus of synergies' that allows societies to co-evolve and co-create new forms of urban societal values for an informed response and renewal to current and future pandemics (Ravetz 2020). That is, an integrated urban planning and governance strategy that involve long-term visioning, disaster planning, adequate investment in the provision of critical services (e.g. education, public transport, health, decentralised service provision, water, sanitation and hygiene), early warning, and coordination of intersectoral action are key response mechanisms required to effectively and timely deal with pandemics and disease outbreaks in cities. This requires an urban agenda that prioritises governance over government; makes room for the resurgence of civil society; enables smart

development through building digital contactless social world; promotes new green deal and supports life beyond materialism; incorporates 'pandemic-ill' strategy and management into urban design; creates avenues for post-capitalist transition to shared value; creates avenues for local mutual aid; all which must be achieved through new political-social-economic contracts (Ravetz 2020). Indeed, recent evidence indicates that integrated urban management and governance has enabled some cities to successfully prevent the spread of the COVID-19 (Duggal 2020).

Conclusion

There has always been a strong historical connection between urban planning and public health. Although the umbilical cord between these two professions was severed in the past, COVID-19 rekindles the need for realignment of some sort, not just between urban planning and public health but other important components of urban life.

Overall, the study showed that there have been many successes and failures with regards to the public policy responses to the COVID-19 pandemic. In response to the COVID-19 pandemic, the effective collaboration between the private, academic institutions and the public sector should serve as the strategic basis for improving Ghana's health sector and other sectors of the economy. The study further showed serious structural problems in the housing, transport, health and water, sanitation and hygiene sectors. These structural weaknesses inhibit the efficiency of the urban systems whilst at the same time limiting the ability of policy makers to effectively respond to pandemics such as COVID-19.

The authors therefore recommend the need for a new urban planning agenda that integrates health in urban planning and harmonises various elements and drivers of urban life. The analysis suggests that of importance to both planning policy and practice, is an urban planning agenda that intensifies collaborative working with public health departments and other agencies to safeguard our collective efforts in dealing decisively with public health emergencies.

Disclosure statement

No potential conflict of interest was reported by the authors.

Funding

No funding was received for this research.

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References

- Afrane, E., *et al.*, 2016. major factors causing housing deficit in Ghana. *Developing country studies*, 6 (2), 139–147.
- Agyemang, E., 2015. The bus rapid transit system in the greater accra metropolitan area, Ghana: looking back to look forward. *Norsk Geografisk Tidsskrift-Norwegian journal of geography*, 69 (1), 28–37. doi:10.1080/00291951.2014.992808.
- Anafo, D., 2019. Rhetorically decentralised, practically recentralised: a review of the local governance system of Ghana. *Commonwealth journal of local governance*, Article ID. 6516.
- Anin, E.K., Annan, J., and Alexander, O.F., 2013. Assessing the causes of urban transportation challenges in the Kumasi Metropolis of Ghana. *American based research journal*, 2 (6), 1–12.
- Asante, L.A. and Ehwi, R.J., 2020. Housing transformation, rent gap and gentrification in Ghana's traditional houses: insight from compound houses in Bantama, Kumasi. *Housing studies*, 1–27. doi:10.1080/02673037.2020.1823331
- Ayee, J.R.A., 2008. The balance sheet of decentralisation in Ghana. In: F. Saito, ed. *Foundations for local governance: decentralisation in comparative perspective*. Heidelberg: Physica-Verlag, 233–258.
- Barton, H. and Grant, M., 2006. A health map for the local human habitat. *The journal for the royal society for the promotion of health*, 126 (6), 252–253. ISSN 1466-4240 developed from the model by Dahlgren and Whitehead, 1991.
- Barton, H. and Grant, M., 2013. Urban planning for healthy cities. *Journal of urban health*, 90 (1), 129–141. doi:10.1007/s11524-011-9649-3.
- Bell, D.M., *et al.*, 2009. Pandemic influenza as 21st century urban public health crisis. *Emerging infectious diseases*, 15 (12), 1963. doi:10.3201/eid1512.091232.
- Boamah, N.A., 2011. The macro-economy and housing credit market in Ghana. *African research review*, 5 (1), 25–39. doi:10.4314/afrr.v5i1.64507.
- Bonful, H.A., *et al.*, 2020. Limiting spread of COVID-19 in Ghana: compliance audit of selected transportation stations in the Greater Accra region of Ghana. *PLoS ONE*, 15 (9), e0238971. doi:10.1371/journal.pone.0238971.
- Boyce, M.R., Katz, R., and Standley, C.J., 2019. Risk factors for infectious diseases in urban environments of Sub-Saharan Africa: a systematic review and critical appraisal of evidence. *Tropical medicine and infectious disease*, 4 (4), 123. doi:10.3390/tropicalmed4040123.
- Carmichael, L., *et al.*, 2013. Health-integrated planning at the local level in England: impediments and opportunities. *Land use policy*, 31, 259–266. doi:10.1016/j.landusepol.2012.07.008
- Chapman, T., 2010. Health and the urban planner. *Planning theory & practice*, 11 (1), 101–105.
- Cobbinah, P.B., Erdiaw-Kwasie, M., and Adams, E.A., 2020. COVID-19: can it transform urban planning in Africa? *Cities & health*, 1–4. doi:10.1080/23748834.2020.1812329.
- Commission, E., 2007. *Supporting decentralisation and local governance in third countries: tools and methods series*. Luxembourg.
- Commission on Social Determinants of Health. 2008. Closing the gap in a generation: health equity through action on the social determinants of health: final report of the commission on social determinants of health.
- Corburn, J., 2017. Urban place and health equity: critical issues and practices. *International journal of environmental research and public health*, 14 (2), 117. doi:10.3390/ijerph14020117.
- Crawford, J., *et al.*, 2010. Health at the heart of spatial planning strengthening the roots of planning health and the urban planner health inequalities and place planning for the health of people and planet: an australian perspective. *Planning theory & practice*, 11 (1), 91–113. doi:10.1080/14649350903537956.
- Cronin, P., Ryan, F. and Coughlan, M., 2008. Undertaking a literature review: A step-by-step approach. *British Journal of Nursing*, 17 (1), 38–43. doi:10.12968/bjon.2008.17.1.28059.
- Croucher, K., *et al.*, 2007. Health and the Physical Characteristics of Neighbourhoods: A Critical Literature Review.
- Dahlgren, G. and Whitehead, M., 1991. *The main determinants of health" model, version accessible in: dahlgren G, & Whitehead M. (2007) European strategies for tackling social inequities in health: levelling up Part 2. Copenhagen: WHO Regional Office for Europe.*
- De La Barra, X., 2000. Fear of epidemics: the engine of urban planning. *Planning practice & research*, 15 (1–2), 7–16. doi:10.1080/713691875.
- Dewar, D. and Todeschini, F., 2017. *Rethinking urban transport after modernism: lessons from South Africa*. London: Taylor & Francis.
- Duggal, V., Sharma, S. and Mehra, R., 2020. Risk assessment of radon in drinking water in Khetri Copper Belt of Rajasthan, India. *Chemosphere*, 239, 124782.
- Eaton, K., Kaiser, K., and Smoke, P., 2011. *The political economy of decentralisation reforms: implications for aid*. Washington, DC: The World Bank.
- Flies, E.J., *et al.*, 2019. Urban-associated diseases: candidate diseases, environmental risk factors, and a path forward. *Environment International*, 133, 105187. doi:10.1016/j.envint.2019.105187
- Forester, J., 1989. *Planning in the face of power*. Berkeley: University of California Press.

- Friedmann, J., 1987. *Planning in the public domain from knowledge to action*. Princeton, NJ: Princeton University Press.
- Ghana Statistical Service, 2012. *2010 population and housing census*. Accra: Ghana Statistical Service.
- Ghana Statistical Service, 2019. *Ghana living standards survey (GLSS 7): main report*. Accra: Ghana Statistical Service.
- Hartmann, T., 2012. Wicked problems and clumsy solutions: planning as expectation management. *Planning theory*, 11 (3), 242–256. doi:10.1177/1473095212440427.
- Hillier, J., 2008. Plan (e) speaking: A multiplanar theory of spatial planning. *Planning theory*, 7 (1), 24–50. doi:10.1177/1473095207085664.
- Honey-Roses, J., et al., 2020. The impact of COVID-19 on public space: a review of the emerging questions.
- Hunter-Adams, J., 2018. Perceptions of weight in relation to health, hunger, and belonging among women in periurban South Africa. *Health care for women international*, 40, 341–364.
- The International Policy Centre for Inclusive Growth, 2016. A new urban paradigm: pathways to sustainable development, United Nations Development Programme.
- Jain, V., Duse, A., and Bausch, D.G., 2018. Planning for large epidemics and pandemics: challenges from a policy perspective. *Current opinion in infectious diseases*, 31 (4), 316–324. doi:10.1097/QCO.0000000000000462.
- Katz, R., et al., 2012. Urban governance of disease. *Administrative sciences*, 2 (2), 135–147. doi:10.3390/admsci2020135.
- Keil, R., 2009. Urban politics and public health: what's urban, what's politics? *Urban geography*, 30 (1), 36–39. doi:10.2747/0272-3638.30.1.36.
- Lambright, G.M., 2011. *Decentralization in Uganda: explaining successes and failures in local governance*. Boulder, Colorado: First Forum Press.
- Lee, V.J., et al., 2020. Epidemic preparedness in urban settings: new challenges and opportunities. *The Lancet Infectious Diseases*, 20 (5), 527–529. doi:10.1016/S1473-3099(20)30249-8.
- Mackay, H., 2020. Of fatness, fitness and finesse. Experiences and interpretations of non-communicable diseases in urban Uganda. *Cities & Health*, 1–16. Available from: <https://www.tandfonline.com/doi/full/10.1080/23748834.2020.1739189>.
- Marmot, M. and Health C. o. S. D. o., 2008. Closing the gap in a generation: health equity through action on the social determinants of health. *The lancet*, 372 (9650), 1661–1669. doi:10.1016/S0140-6736(08)61690-6.
- May, T., 2005. *Gilles deleuze: an introduction*. Cambridge: Cambridge University Press.
- McLaverly, P., 2017. *Public participation and innovations in community governance*. London and New York: Taylor & Francis.
- Miller, C., 2016. The shared history of public health and planning in New Zealand: A different colonial experience. *Progress in Planning*, 106, 1–21. doi:10.1016/j.progress.2015.02.002
- Ministry of Health, 2017. Holistic Assessment of 2017 Health Sector Programme of Work. Accra
- Ministry of Health, 2020. COVID-19: government to begin construction of 88 district hospitals this year – nana Addo. Available from: <https://www.moh.gov.gh/covid-19-government-to-begin-construction-of-88-district-hospitals-this-year-nana-addo> (accessed 19 June 2020).
- Ministry of Local Government and Rural Development. (2012). Ghana National Urban Policy and Action Plan. Available from: <http://www.ghanaiandiaspora.com/wp-content/uploads/2014/05/ghana-national-urban-policy-action-plan-2012.pdf>. [Accessed 11 March, 2020].
- Murillo, F., Artese, G., and Schweitzer, P., 2012. Human dignity: urban responsibility? planning codes helps and the right to the city. *Cuadernos de Vivienda y Urbanismo*, 5 (10), 278–307.
- Nag, D., Goswami, A., and Bharule, S., 2019. Framework for public transport integration at railway stations and its implications for quality of life. DBI Working Paper 1054. Tokyo: Asian Development Bank Institute. Available from: <https://www.adb.org/publications/framework-public-transport-integration-railway-stations-implications-quality>.
- National Development Planning Commission, 2017. Transport Infrastructure Framework of the Ghana Infrastructure Plan (2018–2047). Accra.
- Neiderud, C.-J., 2015. How urbanization affects the epidemiology of emerging infectious diseases. *Infection ecology & epidemiology*, 5 (1), 27060. doi:10.3402/iee.v5.27060.
- Njoh, A.J., 2016. *Urban planning and public health in Africa: historical, theoretical and practical dimensions of a continent's water and sanitation problematic*. London: Routledge.
- Ofori, P., 2019. Efficiency of rental housing in mitigating housing challenges in Ghana: the case of Old-Tafo semi-detached houses in Kumasi township. *Ethiopian journal of environmental studies & management*, 12 (2), 167–180.
- Orme, J., et al., 2007. *Mapping public health*. In: J. Orme, J. Powell, P. Taylor and M. Grey. *Public Health for the 21st Century*. 2nd ed. Open University Press. Maidenhead: McGraw Hill.
- Owusu-Addo, E., Cross, R., and Sarfo-Mensah, P., 2017. Evidence-based practice in local public health service in Ghana. *Critical public health*, 27 (1), 125–138. doi:10.1080/09581596.2016.1182621.
- Pilkington, P., Grant, M., and Orme, J., 2008. Promoting integration of the health and built environment agendas through a workforce development initiative. *Public health*, 122 (6), 545–551. doi:10.1016/j.puhe.2008.03.004.
- Prüss-Üstün, A., et al., 2016. *Preventing disease through healthy environments: a global assessment of the burden of disease from environmental risks*. Geneva: World Health Organization.
- Ramírez, I.J. and Lee, J., 2020. COVID-19 emergence and social and health determinants in colorado: a rapid spatial analysis. *International journal of environmental research and public health*, 17 (11), 3856. doi:10.3390/ijerph17113856.
- Rao, M., et al., 2011. Urban planning, development and non-communicable diseases. *Planning practice and research*, 26 (4), 373–391. doi:10.1080/02697459.2011.585569.
- Ravetz, J., 2020. Pandemic-3.0 – from crisis to transformation. Available from: <https://urban3dotnet.files.wordpress.com/2020/04/pandemic-3.0-from-crisis-to-transformation-31-03-20.pdf> (accessed 26 June 2020).
- Saliara, K., 2014. Public transport integration: the case study of Thessaloniki, Greece. *Transportation research proceedings*, 4, 535–552. doi:10.1016/j.trpro.2014.11.041
- Schneider, D. and Greenberg, M.R., 2018. Urban planning and public health: synergies for achieving a healthy delaware. *Delaware journal of public health*, 4 (2), 56–63. doi:10.32481/djph.2018.03.011
- School of Public Health, 2018. *The state of the nation's health*. Accra: University of Ghana.
- Solecka, K. and Žak, J., 2014. Integration of the urban public transportation system with the application of traffic

- simulation. *Transportation research procedia*, 3, 259–268. doi:[10.1016/j.trpro.2014.10.005](https://doi.org/10.1016/j.trpro.2014.10.005)
- UN-Habitat, 2011. *Cities and climate change: global report on human settlements, 2011*. London: Routledge.
- UN-HABITAT and World Health Organization, 2020. *Integrating health in urban and territorial planning: a sourcebook*. Geneva: UN-HABITAT and World Health Organization.
- Uspalyte-Vitkuniene, R. and Burinskiene, M. 2008. Integration of public transport and urban planning. In *Proc. of the 7th International Conference "Environmental Engineering": selected papers* (Vol. 3, pp. 22–23). Vilnius, Lithuania.
- van den Bosch, M. and Sang, Å.O., 2017. Urban natural environments as nature-based solutions for improved public health—A systematic review of reviews. *Environmental research*, 158, 373–384. doi:[10.1016/j.envres.2017.05.040](https://doi.org/10.1016/j.envres.2017.05.040)
- Van Hulst, M., 2012. Storytelling, a model of and a model for planning. *Planning theory*, 11 (3), 299–318. doi:[10.1177/1473095212440425](https://doi.org/10.1177/1473095212440425).
- Wheeler, S.M., 2004. *Planning for Sustainability: creating livable, equitable, and ecological communities*. London: Routledge.
- WHO, 1986. *Ottawa Charter for health promotion*. Paper presented at the First international conference on health promotion, Geneva.
- WHO & UNICEF 2020. Water, sanitation, hygiene, and waste management for SARS-CoV-2, the virus that causes COVID-19. Available from: <https://www.who.int/publications/i/item/WHO-2019-nCoV-IPC-WASH-2020.4>. (accessed 20 December 2020).
- WHO Africa, 2020. Accelerating progress of the COVID-19 Response: decentralization and scaling-up capacities for public health and other interventions. Available from: <https://www.afro.who.int/regional-director/speeches-messages/accelerating-progress-covid-19-response-decentralization-and> (accessed 19 June 2020).
- WHO and UNICEF, 2017. Safely managed drinking water: thematic report on drinking water. Available from: <https://data.unicef.org/wp-content/uploads/2017/03/safely-managed-drinking-water-JMP-2017-1.pdf> (accessed 25 June 2020).
- World Health Organization, 1978. *Alma ata declaration*. Geneva: World Health Organization.
- World Health Organization, 1995. *Constitution of the world health organization*.
- World Health Organization, 2019. The power of cities: tackling noncommunicable diseases and road traffic injuries. *The power of cities: tackling noncommunicable diseases and road traffic injuries*.
- World Health Organization, 2020a. Coronavirus disease 2019 (COVID-19): situation report, 73.
- World Health Organization, 2020b. *Preparedness, prevention and control of coronavirus disease (COVID-19) for refugees and migrants in non-camp settings: interim guidance, 17 April 2020*. Geneva: WHO.
- Worldometer. 2020. COVID-19 pandemics. Available from: <https://www.worldometers.info/coronavirus/> (accessed 2 October 2020).