Improving upon the working environment of informal sector workers in Ghana: The role of planning

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Abstract: The formalization of the informal sector in Ghana can never be achieved without planning the working environment of the informal sector workers. Although studies have touched on various aspects of the informal sector working environment, no review studies are available on the role of planning in the working environment of the informal sector in Ghana. The purpose of this review was to identify the working environment of informal sector workers and highlight the role of planning as a first step in formalizing the sector to improve their working environment. The study is based on descriptive and narrative content analyses of the literature on the working environment of informal sector workers and the role of planning. The analysis revealed that the working environment of the informal sector workers is hazardous, devoid of social protection, and polluted, which poses risks of injuries and diseases to workers thereby undermining their health and well-being. The poor nature of the working environment of the informal sector workers makes the social, spatial, environmental and facilitating roles of planners crucial in the informal sector. Through planning, the informal sector could be sufficiently guided to appreciate the opportunities and challenges in their working environment to find lasting solutions to the inherent health and safety problems. There is a need for

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PUBLIC INTEREST STATEMENT

An investigation of the working environment of informal sector workers is central in the formulation of occupational health and safety policies. Although limited research has touched upon various aspects of the working environment of informal sector workers, they fail to emphasize how the planner can improve the working environment. The study sought to assess the working environment of informal sector workers in Ghana and identify the role of planning in improving the working environment. Despite the critical role of the informal sector in employment and income generation, the sector poses a risk to workers due to unfavourable working environment. Informal sector workers’ exposure to hazards, with inadequate protection makes them prone to work-related injuries and diseases. The unacceptable working environment of informal sector workers makes the social, spatial, environmental and facilitating roles of the planner crucial.

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government to formulate a national occupational health and safety policy and regulatory framework to regulate the informal sector.

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**Keywords:** informal sector; working environment; planning; occupational health and safety; occupational hazards; formalization process

### 1. Introduction

The informal sector denotes employment and production that takes place in unincorporated small and/or unregistered enterprises (International Labour Organization, 1993). While the formal sector of the economy continues to contract in developing countries, the activities of the informal sector persevere positively in expanding and absorbing the growing labour force. The informal sector performs a vital role in many developing countries (Ghana Statistical Service, 2019; Vanek et al., 2014). According to Clarke (2012), the informal economy is the main labour employer in developing countries. The informal sector contributes about 50% of national output, 80% of total employment and 90% of new jobs in low-income countries in Africa (Mbaye, 2014). The informal sector contributes approximately 70% of Nigeria’s employment, generates 50% of employment in Israel and about 80% in India (Chukuezii, 2010). According to the Ghana Statistical Service (2016), Ghana’s informal sector employs about 90% of the working population, wherein engaging in micro, small and medium-scale enterprises. In addition, the informal sector contributes about 20–40% to the Gross National Product (Boeh-Ocansey & Cudjoe, 2005).

Aflers (2009:4–5) asserts that not only are informal jobs “flexible, precarious and insecure”, but found in locations that are insalubrious and unsafe (i.e. hazardous). The location of occupation, categories of enterprises and economic activities in diverse workplaces do not always meet required standards. Rantanen (2009) notes that the informal sector is often characterized by severe forms of exposure to hazards at the workplace. Estimates indicate that two-thirds of the world’s workers work in conditions that do not meet the International Labour Organization’s minimum standards (World Health Organization, 2014).

The rudimentary nature of informal sector occupation exposes informal sector workers to occupational hazards which often leads to numerous injuries and diseases (Gaurinoni et al., 2013; Kumar, 1997; World Health Organization, 2005). Firenze (1978) defines an occupational hazard as any existing or potential condition or threat in the workplace that by itself or by interacting with other variables can result in deaths, injuries, diseases, property damage and other losses. Kumar (1997) asserts that although the informal sector offers a better alternative to unemployment, the unprotected nature causes more harm than good with dire consequences on their well-being and livelihoods both in the short and long term.

Notwithstanding the informal sector’s critical role, the literature on planning as a tool for improving the working environment is rare. The literature has only yielded comprehensive knowledge on the role of the informal sector (Nwaka, 2005; Ranis & Stewart, 1999), rethinking (Chen et al., 2002; Maloney, 2004; Rauch, 1991), and health and safety measures (Forastieri, 1999; Kawakami, 2006; Kogi, 2002). The emphasis of the literature has been on the various aspects of informal sector workers’ working environment while completely ignoring the role of planning as a tool in improving the working environment of the informal sector workers. To the best of our knowledge, no review studies are available on the role of planning in the working environment of the informal sector workers in Ghana. This study seeks to fill this gap by discussing the role of planning in improving the working environment in the informal sector. The United Nations Development Programme (2009:7) indicates that planning is the “process of setting goals, developing strategies, outlining the implementation arrangements and allocating resources to achieve these goals”. Planning the informal sector’s working environment involves identifying vision, goals/objectives to be achieved, formulating strategies and outlining implementation arrangements while determining and allocating resources to achieve the set goals/
objectives. This paper also aims at developing a guiding framework for improving the nature of the working environment. A study of this nature is needed to inform policy decisions on improving the working environment of the informal sector workers in Ghana. Explicitly, the findings from this study may be important for urban planners, city authorities and other key stakeholders who play a critical role in shaping the working environment of informal sector workers. The findings from this study may further call for the need to integrate the activities of the informal sector into city planning and zoning to inform improved working environment that safeguard the health and safety of informal workers. In other words, the main objectives of the paper are to review the working environment of informal sector workers in Ghana and examine the role of planning for improving their working environment.

The paper is organized into six sections, this section inclusive. Section 2 focuses on the methods adopted for the research. Section 3 presents the results on the working environment of informal sector workers and highlights the role of planning. Section 4 deals with the discussion of findings, the strength and weaknesses of the study. Section 5 deals with short- and medium-term recommendations, and a guiding framework for improving the working environment of informal sector workers. The last section presents the conclusion of the study.

2. Methods
This study is based on a review of relevant, related and available literature on the working environment of informal sector workers in Ghana. This review comprised studies that target several groups such as informal sector workers, policy makers and other key stakeholders involved in occupational health and improving the working environment of informal sector workers. Three inclusion criteria was employed in this study. First, the review covered studies that were carried out in Ghana. Second, papers that were published in the English language. Third, papers that focused on informal workers with special attention to the working environment including occupational health and safety practices. The review covered almost all papers that focused on the working environment of the informal sector workers with special attention to occupational health and safety issues. The search of the papers in English language involved scholarly works that have been stored in electronic databases such as Google Scholar, PubMed, MEDLINE, Web of Science, JSTOR and SCOPUS. Search was made on words such as informal sector, working environment, occupational health and safety, occupational hazards, occupational injuries and diseases, planning and formalization process. Three stages were followed in conducting the information search. At the first stage, an initial search was conducted in SCOPUS and PubMed which was followed by an analysis of the search item found in the titles and abstracts of the papers. The second stage involved the identification of keywords and index terms with the purpose of searching for papers from the entire selected database. At the final stage, a hand search of the reference list of all the identified articles for additional papers for inclusion in the analysis was carried out. This review covered articles that used qualitative, quantitative and mixed methods data. The qualitative studies mainly utilized interviews guide while the quantitative studies largely relied on questionnaires as the data collection instruments. The studies included papers published from 2000 to 2021. Several stages were followed for the purpose of selecting articles for inclusion in this study. These included identification, screening, eligibility and inclusion. First, three authors independently screened the titles of the papers that were retrieved, and those that met the selection criteria were approved. Second, all the abstracts were reviewed and the authors approved those that need full-text screening. After the full-text screening, all the articles that meet the inclusion criteria were adopted in the final analysis (see Figure 1). The information obtained after reviewing the literature was described and narrative content analysis was made.

3. Results
This section presents results based on the literature on the working environment of the informal sector workers and the planner’s role in ensuring health and safety in the informal sector. The section does not only provide an elaboration on exposure to occupational hazards, injuries and diseases in the service and industrial sector but also covers the social, spatial, environmental and facilitating role of the planner.
3.1. The working environment of the informal sector workers in Ghana

Ametepeh et al. (2013) observed that informal service workers such as drivers, beauticians, head porters (Kayaye) and mechanics in the Sekondi-Takoradi Metropolitan area were exposed to psychosocial, physical and ergonomic hazards. Exposure to these hazards led to injuries and self-reported diseases such as respiratory disorders, skin rashes, malaria and abdominal pain. The provision of personal protective equipment was a shared responsibility between the employers and employees and its usage was generally low. Alfers (2009) in a study that involved market and street traders in Accra also found that respondents were exposed to psychological and fire hazards, poor sanitation and food poisoning. Even though the local government is a key institution responsible for improving the working condition of the market and street traders, there was a communication gap between them. In a related study, Osei-Boateng and Ampratwum (2011) reported that in major markets in cities such as Accra, Kumasi, Takoradi and Tamale in Ghana, garbage heaps remain a common sight. Many employees are either ignorant of harmful activities or chemicals in the informal sector or cannot afford safety gadgets.

Informal computer recycling involves highly crude methods by primarily dismantling, breaking, shredding, acid processing, burning organics, disposal of non-recyclables and disordering (Asibey et al., 2020). Dismantling and burning of e-waste lead to air pollution and its associated health-related problems (Fischer et al., 2020). Heavy metals and inorganic acids can leach through wastewater into the waterways, thus contaminating waterbodies (Caravans et al., 2011). Danum et al. (2017) and Burns et al. (2019) assert that the health impact originating from
Dismantling operations is due to exposure to hazardous dust and creates a relatively less minor impact amongst all other operations. Studies done in Agbogbloshie show that e-waste informal recycling workers suffer long hours of work and dangerous physical working conditions. The literature indicates that mental health problems could result from recycling (Burns et al., 2019). Toxic health and environmental hazards are part of this state of risk (Oteng-Ababio, 2012). Like many waste recycling processes in Ghana’s informal sector, workers, including children, go through dumpsites to gather discarded computers to recycle (Asibey et al., 2020). Others have links with retail shops and repairers where they source these materials for their activities. In the process, many fall, experience cuts and crush injuries (Burns et al., 2019; Yu et al., 2016). Chest pains and respiratory symptoms attributed to workplace variables were other commonly reported conditions (Asampong et al., 2015). Indigestion, weakness, gastritis, breathing problems, skin irritation, muscle and low back pain and finally, injuries (e.g. accidental, thermal and corrosive) and metal fume fever associated diseases affect these informal workers (Fischer et al., 2020). Extreme wound infections slow healing of wounds, deformities associated with poor wound management and the risk of infection with tetanus (Asampong et al., 2015; Dogbevi, 2018). The informal e-waste recyclers are exposed to these hazards, injuries and diseases because they lack or have inadequate personal protective equipment. Because most of these industries are virtually new in many developing countries, there are no specific guidelines to guide the activities. As such, these activities are left unmonitored and uncontrolled and, in most cases, generate hazards beyond the working environment to the broader society (Asibey et al., 2020).

Adei et al.’s (2019a) study of informal fish processors in Kumasi reported that the women involved in the activity used the manual handling approach. Their activities were associated with ergonomic, physical, biological and psychosocial hazards, which were mainly attributed to poor work organization, poor ergonomic practices and exposure to fire, extreme temperature and smoke. Despite the exposure to these hazards, the use of personal protective equipment was low, leading to musculoskeletal injuries, lacerations, fall injuries and burns. Occupationally related diseases reported by the fish processors were musculoskeletal diseases, malaria, hypertension and respiratory diseases. Apart from the environmental health officers who ensured the fish processors’ health and safety, all the legally mandated institutions did not cover them (Adei et al., 2019a).

Bonsu et al. (2020) identified that the informal baking industry in Kumasi was highly labour-intensive and in the process, workers were exposed to several occupational hazards, including physical, biological, chemical, psychosocial and ergonomic hazards. Even though the bakers had adopted strategies such as the use of handkerchiefs, metallic and wooden peel, removing excess fire, wearing long-sleeved shirts, and proper lifting techniques to control dust, fire, high temperature and mosquito bites they were exposed to, but these strategies were less effective. The exposure of the bakers to these hazards led to health, social and economic consequence, which had reduced their well-being and quality of life (Bonsu et al., 2020).

Furthermore, the social working environment of the informal sector in Ghana is poor. Social protection for informal sector workers through institutionalized social security schemes in Ghana is insignificant. The Social Security and National Insurance Trust (SSNIT) Informal Sector Fund has a client base of over 155,000 while privately managed informal sector pension initiatives have enrolled between 5,000 and 160,000 members (Guven, 2019). Nonetheless, this covers just a fraction of Ghana’s informal sector since less than 70% of informal sector workers are enrolled in the pension scheme (Ghana Statistical Service, 2016). Adei et al. (2019a) reveal that none of the fish processors in the Kumasi Metropolitan Area actively contributed to the SSNIT fund or any insurance scheme towards their pension. Informal welders were also found not to have enrolled on the SSNIT fund even though contributions to the fund are open to the informal sector workforce (Adei et al., 2021b). The implication is that inadequate social protection has dire consequences on the survival and vulnerability of informal sector workers in Ghana. In 2003, the Government of Ghana introduced the National Health Insurance Scheme (NHIS) that incorporated the informal sector workers. Adei et al. (2019b) assert that the registration for NHIS is a safety measure that
provides free healthcare for informal sector workers. However, the literature indicates that informal sector workers’ enrolment onto the NHIS is negligible. Ametepeh et al. (2013) reveals that 43.8% of the informal sector workers in the Sekondi-Takoradi Metropolitan area of Ghana had registered under the National Health Insurance Scheme, with about 12.6% not renewing their subscription after the first year. Also, approximately 17% of the informal sector workers were enrolled in the NHIS in the Kumasi Metropolitan area of Ghana (Adei et al., 2019b). The low enrolment in the NHIS has implications for ensuring health and safety, productivity and vulnerability of the informal sector workers.

The above discourse reveals that the informal sector despite its potential of increasing employment and contributing to a country’s Gross Domestic Product poses a risk to workers due to the type of working environment they find themselves in. Beyond the individual workers and organizational consequences, there are negative externalities of their activities. The pollution generated when not well managed exposes society to hazards and risks that may lead to the outbreak of diseases. The increased involvement of children in these activities and their exposures present new dimensions of child labour and child development in Ghana. All these must be responded to from a broad national policy and regulatory framework that seeks to build the capacity of these informal firms to adopt cost-effective and simple mechanisms for protecting themselves and the society against hazards and risks that have consequences on denigrating the health status of the present and future human resources.

3.2. The role of planning in improving the working environment of the informal sector

This section focuses on the attempts made by the Government of Ghana to formalize the informal sector and the role of the planner in improving the working environment of informal sector workers. The roles played by the planner have been categorized into social, spatial, environmental and transactive, with a focus on formalizing the informal sector with the planner playing a facilitating role in the Ghanaian context.

3.2.1. The role of Government in formalizing the Ghanaian economy

The Government of Ghana through various policy initiatives seeks to formalize the Ghanaian economy. The introduction of the paperless system seeks to enhance efficiency in transactions at the port. This is aimed at reducing the transaction time and also increase revenue through checking tax evasion which is common among informal businesses. Business registration certificates can also be generated electronically to reduce business registration from eight steps within 14 days to three steps within 4 days (Ministry of Finance and Economic Planning, 2018). To reduce unregulated and informal business, mobile money interoperability has also been introduced to address the difficulty associated with informal sector engagements with the banking sector (Ministry of Finance and Economic Planning, 2020). The Government has further introduced the Digital Addressing System and National ID Card to enhance easy identification of individuals and their activities. These reforms will enhance easy identification of borrowers and in the long run reduce the interest on loans due to reduced risk and uncertainty (Ministry of Finance and Economic Planning, 2018).

All the strategies enumerated above are meant to ease business registration, regulate informal business, reduce insecurity of the informal sector and also increase revenue to the government through taxation. However, from the occupational health and safety standpoint, several challenges associated with the sector are not features inherent to the sector but rather signs of unresponsive occupational health planning. Parliament has not fast-tracked the passing into law of the Occupational Health and Safety policy (ILO convention C155) to enable the Department of Factories Inspectorate to cover the informal sector, which employs 90% of the labour force in the country. This has made the provisions of the Factories, Offices and Shop Act of 1970 insufficient in scope since the majority of industries, agricultural and the informal sectors are not specifically covered (Clarke, 2005). The Department of Factories Inspectorate and the Labour Department responsible for enforcing OHS standards, guidelines and laws do not cover the informal sector because they are faced with financial, logistical and human resources constraints and challenges
which makes them ill-prepared to execute their roles and responsibilities effectively and efficiently (Adei & Kunfao, 2007). This has made the informal workers vulnerable to work-related injuries and diseases due to poor regulatory enforcement. There are several drawbacks to the provision of occupational health and safety services such as poor infrastructure and funding, insufficient number of qualified occupational health and safety practitioners, and the general lack of adequate information (Amponsah-Tawiah & Darney-Baah, 2011).

There is the need to reform our thinking about the informal sector and focus more on ensuring that their health, safety and welfare issues are dealt with to reduce work-related injuries and illness. But the question is what type of strategies should the planner put in place to ensure decent work for this category of the labour force? The strategies should include streamlining the activities of informal sector workers to ensure that they are recognized, their voices are heard and OHS issues affecting them are dealt with by the national and the local authorities.

3.2.2. The role of the planner in improving the informal sector working environment

In ensuring health and safety in the informal sector, it is the responsibility of the planner to play a social role in safeguarding the well-being of informal workers. Given the increasing number of informal sector workers due to government policy of not employing but only replacing employees who have retired, the planner must anticipate the informal sector’s growth trend and plan to meet their demands (Berke & Conroy, 2000). They should be allowed to participate in decisions that have direct bearings on their health and safety to reduce their vulnerability and ensure that their fundamental rights are upheld. To withstand the pressure of urbanization, planners should carry out a needs assessment to facilitate the provision of essential social services such as transportation, health, sanitation, water and security (Bolan, 1971). In developing countries, policies and plans are implemented to meet the population’s needs without sacrificing the needs of the future labour force (Vos, 2003).

Spatial planners develop schemes to harmonize human activities (Town and Country Planning Department, 2011). In this context, the planner adopts land use planning and zoning concepts to segregate the various uses of land demands. Informal sector enterprises seek to maximize profit strategically located at bus stops, along road junctions and high pedestrian traffic (Oshinowo, 2007). Steel et al. (2014) observed that this behaviour often leads to conflicts between the city authorities and informal workers who are often evicted to keep the city clean, safe and orderly. However, the evictions do not necessarily address the problem. They relocate and exaggerate the conflict between authorities and the informal sector workers. Many actors often return to their former places a few days after the eviction by the city authorities (Steel et al., 2014). An effective strategy to reduce conflicts between urban authorities and informal sector workers and reduce environmental problems associated with their activities would be for spatial planners to zone (provide) adequate space for them to operate, especially in the urban areas. Industrial estates need to be developed for those who work in the industrial sector. There should be fully or partially serviced land with amenities such as water, drainage systems, roads and electricity for sustainable urban development that guarantees appreciable living standards (Acheampong, 2019).

Planners act as environmentalists who consider the sensitivity of the environment in development settlements. The potential environmental impacts of the informal sector’s activities must be identified and managed to avert nuisance creation (Fischer, 2003). Planners plan to take into consideration the environmental health of the urban setting. Therefore, they should monitor and evaluate the scope of the activities of informal sector actors to ensure that they are environmentally compatible (Stoeglehner et al., 2009).

Transactive planning, propounded by John Friedman, is a collaborative type of planning and a reaction to what is perceived as elitist and top-down planning. Transactive planning rejects the view that people are anonymous target beneficiaries of planning. It is based on Habermas communicative rationality, a type of rationality that is based on dialogue between planners and the people who are affected by planning. The model focuses less on surveys and data analysis and more on interactive dialogue and
mutual learning (Hudson et al., 1979). The planner’s role as a technician is complemented with a communicative strategy which allows the planner to discuss current developmental issues in simple technical language to citizens and encourage various interest groups to express their opinion and arrive at a consensus. The citizens and their leaders are expected to play active roles in policy formulation and plan implementation. The planners act as facilitators, mediators and communicators to get more information about the participants. Stakeholders are brought together to interact and share ideas early in the planning process. The planner mediates between different interest groups, gathers and shares information between the actors, which serves as an opportunity for participants to be educated and be part of the planning process. The planner seeks to reduce disagreement among participating interest groups and build consensus and by so doing help society to learn from their experiences (Stiftel, 2000). The dialogue gives room for the development of ideas and choosing the best alternative course of action.

Ensuring Occupational Health and Safety issues in the informal sector will take a long process, but an extensive consultation with informal sector workers about their working environment and how it can be improved can change popular opinion. The planner’s primary role would be facilitating engagement, ensuring that everyone concerned is heard and taken seriously, documents all the outcomes of the meetings and writes the final synthesis. Strategies to involve the informal sector workers could be through workshops, surveys and informal meetings. Teamwork between stakeholders such as the representatives of informal sector workers, Department of Factories Inspectorate, Labour Department, Spatial Planning Department, Environmental Health Department, Waste Management Department, Fire Service, Works Department and other relevant government institutions is crucial to ensure successful implementation of policies or programmes which emerge and also lead to an integrated effort to ensure occupational health and safety.

The planner is required to develop mediation and negotiation skills to design techniques that will meet all stakeholders’ needs. Ensuring the participation of stakeholders is meant to harvest their opinion on what is good for them on their terms; issues that affect the growth and development of the sector, their needs, how the formalization process needs to be done, who should be involved, anticipated challenges and the way forward. This is meant to arrive at common themes to which various scenarios in solving the problem can be reached. The planner needs to apply mediation and negotiation skills, especially when misunderstanding (conflicts) arises between stakeholders. During such meetings, stakeholders should be fully informed and empowered to voice their concerns and consensus should be reached through face-to-face discussions (Innes, 1996). The meetings should be transparent one with various views taken into consideration and no one should hold a powerful position to take a unilateral decision. The results of stakeholder meetings would be to develop policies and implement plans for mainstreaming the informal sector into the formal sector. This would also ensure coordination, information sharing and ownership of the final decision on how the working environment could be improved. This would ensure that apart from the employer, employee and their representatives ensuring that their working environment is improved, the government’s role of enforcing OHS standards would also be enhanced to reduce the mortality and morbidity associated with the work process.

4. Discussion
The purpose of this review was to identify the working environment of informal sector workers and highlight the role of planning as a first step in formalizing the sector to improve their working environment. The review revealed that the informal economy is made up of small-sized businesses which are mainly organized along the roadside, from homes or informal arrangements. They are neither registered nor recorded in official statistics, lack social protection and operate outside legal framework. Also, the informal sector boosts entrepreneurial activity by creating job opportunities thereby reducing unemployment. Even though studies recognize the enormous contribution of the informal sector to employment and income generation, the working conditions of the sector remain poor.
Many of the enterprises lack or have poor access to amenities such as toilet facilities, dump sites and organized places where they work. The workers are exposed to physical (noise, poor ventilation, extreme temperature, smoke), psychosocial (emotional and mental stress, crime at the workplace, poor concentration) biological (mosquito bites, flies, parasites and worms) chemical (hazardous gases) and ergonomic (lifting of heavyweights, assumption of awkward postures) hazards in their working environment (Adei et al., 2019b; Ametepeh et al., 2013; Asampong et al., 2015; Bonsu et al., 2020). The World Health Organization (2006) explains that the consequence of these occupational hazards increases the risk of morbidity and mortality at the workplace. Different exposures to hazards have different consequences and magnitude due to the frequency of exposure, mitigation measures, and curative systems available to the worker. Depending on the type of hazards the informal sector workers are exposed to in their working environment, they may suffer from injuries such as musculoskeletal injuries, lacerations and extreme wound infection (Adei et al., 2021a; Asampong et al., 2015; Dogbevi, 2018) fall injuries (Adei et al., 2019b; Adei et al., 2021a; Burns et al., 2019; Yu et al., 2016) and burns (Adei et al., 2019a; Adei et al., 2021a; Bonsu et al., 2020). Work-related diseases include indigestion, gastritis, abdominal pain (gastrointestinal tract), respiratory, malaria, skin and musculoskeletal diseases (Adei et al., 2019b; Adei et al., 2021a; Ametepeh et al., 2013; Asampong et al., 2015; Bonsu et al., 2020).

All these occupational injuries and diseases have negative consequences on the health and safety of informal workers for some may even be terminal. These adverse effects have become critical in both social and economic policy issues (Adei et al., 2021b; Bonsu et al., 2020). Socially the negative effects of injuries and diseases are immeasurable in terms of quality of life, pain and suffering and mental health. The social cost does not only affect the workers’ health and well-being but also destroys relationship with their households, communities and the nation at large. The economic cost of work-related injuries and diseases also impact negatively on the quality of work, productivity, medical expenses, health insurance and prosperity (Adei et al., 2021b; Bloom & Canning, 2000; Brandt-Rauf et al., 2001; Rial-González et al., 2005). Since the informal workers bear the cost of work-related injuries and diseases themselves, there is the need for awareness creation on socio-economic losses and behavioural change in terms of obeying all safety rules and regulations.

The study reveals that exposure to hazards directly or indirectly affects the welfare of the vulnerable worker. Informal workers lack social protection and also work under indecent conditions, especially when appropriate interventions are not implemented to minimize hazard exposure and risk to a large extent (Guven, 2019). This makes the role of planning as a tool in improving the working environment of the informal sector very crucial. Since planners are advocates for growth and development in society, they provide strategic solutions for identified problems. The role of the planner is not limited to pursuing the advancement of the lives of the formal workers but the informal workers as well. Thus the planner performs social, spatial, environmental and facilitating roles in improving the working environment of the informal actors.

The informal sector workers are engaged in unorganized and unstructured activities (International Labour Office, 2000). The provision of decent workspaces for actors of the informal sector is an effective measure or attempt to reducing the environmental problems associated with their activities. As indicated by Adei et al. (2021b), the informal sector worker in Ghana lacks occupational health and safety legislation. Therefore, the planner’s role is to advocate for the informal sector workers in establishing an appropriate regulatory framework, including introducing acceptable forms and legislation of social protection. Liaising with government agencies and the private sector in providing health protection schemes will help reduce the social and economic costs incurred by the informal workers. To improve the health and safety of the informal sector worker, the planner, together with the various government agencies and city authorities, should facilitate infrastructure delivery of basic services and health facilities.
The planner guides the informal sector actors to identify their roles in the economy, potentials, constraints, opportunities and challenges in their working environment and find lasting solutions to their problems. The focus is on involving the stakeholders to participate in meetings where they brainstorm to arrive at decisions. Consequently, potentials within and opportunities outside the sector can be harnessed to solve their problems. Creating a decent working environment may help increase the informal sector workers’ efficiency and social welfare, which can be done through planning, capacity building, the formation of associations and the provision of amenities needed to make the workers comfortable. Planning has been seen as a very important aspect of life, anyone that fails to plan is planning to fail.

This review has provided new insight into the role of planners in formulating and implementing sustainable policies and plans to meet the health, safety and welfare needs of the growing informal labour force in Ghana. The study has further validated the need for city authorities, urban spatial planners and other relevant stakeholders to ensure that the working environment of the informal sector workers are integrated into city planning and zoning if occupational hazards are to be minimized or eliminated by addressing their health concern and ultimately improve upon their standard of living. Again, the implementation of recommendations provided would facilitate the achievement of SDG 8.5 and 8.8, which aim at achieving full and productive employment, decent work, promote a safe and secure working environment for those in precarious employment.

5. Recommendations
This study makes recommendations to improve the working environment of the informal sector workers. The recommendations have been categorized into short and medium terms. Furthermore, a framework for improving the working environment of informal sector workers is presented to guide stakeholders. The stakeholders are mainly the planner, government, unions and informal sector workers.

5.1. Recommendations for the short term
The informal desk of the Trades Union Congress in Ghana should encourage and organize informal sector workers to form associations. Issues concerning the various informal associations should be tailored through their association to the government. The benefits that will accrue to the members of the associations should be made clear to them and it should include the provision of personal protective equipment to reduce OHS injuries and diseases, education on bookkeeping, leadership and management training, education on their rights and the need to demand the value of the taxes they pay.

Furthermore, the leadership of the association should write a Constitution and register the Association with the Ghana Trades Union Congress. This would enable informal sector workers to be regulated, taxed and covered by government policies. The government institutions responsible for safeguarding health and safety should ensure that informal sector workers undertake their work activities under safe conditions that employ the use of engineering control, administrative control and the use of appropriate personal protective equipment (PPE).

5.2. Recommendations for the medium term
To encourage the informal sector enterprises to register their businesses, the bureaucracy for registration should be reduced because the time used for the registration is of the essence to them. Since their focus is on sustaining their livelihood source, they would prefer to channel the longer time spent in registering their businesses to work, increasing their productivity and returns on their investment. If the district assembly or the leaders of their association get them registered, they would know where they are and what their needs are. Once their needs are provided they would be able to work in a healthy environment and increase their productivity. This would also enable informal sector enterprises to be captured in the national statistics for taxation purposes. In doing this, the government could provide an incentive of at least 2 years’ tax rebate for informal sector workers who register their business with the Registrar General’s Department.
Stakeholders would have to meet to brainstorm to reconsider the definition of the informal sector (target group), what they do, what their needs are, what their challenges are, issues that need to be considered in the formalization process and the way forward. The road map for each of the stakeholders towards the formalization process needs to be spelt out. The formalization process need not be a one-size-fits-all, vulnerable groups should be given special consideration (such as tax rebates, other incentives) to encourage them to formalize (joining associations and register with the register general) and comply with the legal requirement.

Spatial planners should develop an effective strategy to reduce conflicts between urban authorities and informal workers and reduce environmental problems associated with their activities. Spatial planners should provide adequate spaces for informal workers to operate, especially in urban areas. This should complement the provision of potable water, sanitation facilities, health facilities and daycare centers where women can keep their children.

5.3. Guiding framework for improving the working environment of informal sector workers

Figure 2 presents a guiding framework for improving the working environment of the informal sector. The framework focused on the social, spatial, economic and governance aspects of the informal sector, the challenges encountered, effects and the required planning interventions necessary to improve upon the working environment of the informal sector workers.

The framework indicates that urban development authorities often neglect the informal sector and hence fraught with challenges that emanate generally from their working environment which include the inadequacy of or lack of PPE (Ametepeh et al., 2013; Onyenechere, 2011), space to operate, access to basic sanitary services (Alfers, 2009) and access to formal education. With regard to the economic dimension; low productivity, low level of technology and skills, little or no collateral to access loans from banks and none or inadequate payment of taxes were some issues (Lawanson, 2011).

The neglect of the informal economy has led to the creation of barriers which does not ensure a more efficient and more robust informal economy and these have direct implications on the working environment. These challenges have led to an increase in occupational accidents, injuries and diseases, disability, inadequate insurance protection during illness and pension, low-income level and persistent poverty (Guarinoni et al., 2013; Kumar, 1997; World Health Organization, 2005). Due to the informal sector workers being voiceless, their needs and concerns are not mainstreamed into programmes and projects at the local and national level.

These challenges affect the environment and working conditions. The framework finally prescribed the corresponding interventions to address the challenges and effects of the working environment. These interventions will end up “formalizing the informal sector and ensuring that their needs and aspirations are mainstreamed into the development process”. This would have a direct bearing on the development of a positive attitude among stakeholders about the informal sector. Therefore, there is the need for stakeholder consultation to understand the informal sector; who informal sector workers are, their needs and concerns. Given the informal sector’s critical role, there is the need to either accommodate or integrate them into the urban formal environment by encouraging the informal sector workers to form associations and elect/appoint their leaders to maintain a register of members.

The development of a policy framework that incorporates inputs from all stakeholders should include

• identification of hazards in the working environment which affects the welfare of the workers;
• how the OHS hazards and risk can be minimized and/or prevented;
• the need for documentation and reporting of OHS accidents, injuries and diseases;
Figure 2. Conceptual framework for improving the working environment of the informal sector.

Source: Adapted from Litong et al. (2002) and World Health Organization (2010)
• the role of stakeholder in ensuring appropriate, targeted and effective implementation of OHS programmes; and
• the need to ensure social protection, rights to work and social dialogue.

The proposed framework (see Figure 2) should have programmes, projects and strategies to be rolled out within the short and medium terms. The source of funding, logistics, capacity building and the timelines for formalizing the informal sector would ensure the smooth implementation of the programme. The implementation of the programmes and projects by the relevant institutions is very important to ensure that the plan does not sit on the shelves. The monitoring and evaluation of the programmes and projects become very crucial in achieving its goals and objectives and also ensure the derivation of outcomes. A feedback mechanism would ensure that the working environment of the informal workers can be assessed and issues that need to be improved upon are addressed. Integrating the informal sector in the formal sector will not just reduce the clash between urban authorities, but will also reduce the associated environmental problems encountered by the sector and increase the quality of life of the workers. Moreover, the maintenance of proper records of purchase and sales by informal sector workers will ensure that turnover is determined and the appropriate payment of taxes made.

6. Conclusion
The study found that even though the informal sector contributes substantially to employment and income generation in Ghana, their working environment remains poor and the factors which have contributed to this state include (i) hazard exposure and inadequate protection and (ii) injuries and diseases as a result of exposure to hazards and health-related risks. To ensure that the informal sector continues to employ most of the labour force in Ghana, there is the need to improve their working environment to ensure that a more significant proportion of the labour force can make ends meet and contribute their share to the country’s development. The informal sector’s growth and development is necessary, if not compulsory, but mainstreaming their concerns into the development process cannot be achieved without adequate planning. To improve the working environment of the informal sector workers, the focus should be on the formalization process. Extensive consultation of informal sector workers (or their representatives) about their working environment and how it can be improved can change popular opinion. Hence, planners need to be on their toes to ensure that the working environment of the informal sector workers is improved. The planner’s role is not in isolation since the improvement in the health and safety needs of the informal sector aids productivity. Lastly, protecting the health and lives of informal workers is an ethical and moral issue that needs increased attention and discussion in Ghana and other developing countries.

Limitation of the study
The study has a limitation of focusing on Ghana, a lower-middle-income country in West Africa; therefore, it is unclear the extent to which the findings could be generalized to countries without similar socio-economic characteristics. To get a global perspective of the nature of informal workers’ working environment, we encourage systematic review in future studies to identify research gaps and provide recommendations that can be generalized for policy formulation and implementation.

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References
Acheampong, R. A. (2019). Spatial planning and the urban informal economy. In Spatial planning in Ghana (pp. 269–288). Springer.
Adei, D., Acquah Mensah, A., Agyemang-Duah, W., & KamKam, K. K. (2021b). Economic cost of occupational injuries and diseases among informal welders in Ghana. Cogent Medicine, 8(1), 1876338. https://doi.org/10.1080/2331205X.2021.1876338
Adei, D., Agyemang-Duah, W., & Mensah, A. A. (2019b). Predictors of enrollment in health protection scheme among informal sector workers in Kumasi Metropolitan of Ghana. BMC Res Notes, 12(758), 2019. https://doi.org/10.1186/s13104-019-4782-2
Adei, D., Agyemang-Duah, W. & Mensah, A.A. (2021a). Demographic and socio-economic factors associated with exposure to occupational injuries and diseases among informal sector workers in Kumasi metropolis, Ghana. Journal of Public Health, 1-9. https://doi.org/10.1007/s10389-021-01492-3
Adei, D., Braimah, I., & Mensah, J. V. (2019a). Occupational health and safety practices among fish processors in Kumasi Metropolitan Area, Ghana. Occupational Health Science, 3(1), 83–102. https://doi.org/10.1007/s41542-019-00038-0
Adei, D., & Kunfuo, E. Y. (2007). Occupational health and safety policy in the operations of the wood processing industry in Kumasi, Ghana. Journal of Science and Technology, 27(2), 159–171. https://doi.org/10.4314/v2.77i2.33052
Alfers, L. (2009). Occupational health and safety for informal workers in Ghana: A case study of market and street traders in Accra. WIEGO.
Ametepeh, R. S., Adei, D., & Arhin, A. A. (2013). Occupational health and safety of the informal sector in the Sekondi-Takoradi Metropolitan Area of Ghana. Journal of Humanities and Social Science, 3(20), 87–99. https://www.ijste.org/Journals/index.php/RHSS/article/view/10178
Amponsah-Tawiah, K., & Darney-Boah, K. (2013). Occupational health and safety: Key issues and concerns in Ghana. International Journal of Business and Social Science, 2(14), 119–126. http://www.ijbssnet.com/Journals/Vol_2_No_14%3B_July_2011/14.pdf
Asampong, E., Dwuma-Badu, K., Stephens, J., Srigoboh, R., Neitzel, R., Basu, N., & Fobil, J. N. (2018). Health seeking behaviours among electronic waste workers in Ghana. BMC Public Health, 18(1), 1065. https://doi.org/10.1186/s12889-015-2376-z
Asibey, M. O., Anne Mette, L., & King, R. S. (2020). Understanding the factors for increased informal electronic waste recycling in Kumasi, Ghana. International Journal of Environmental Health Research, 1–16. https://doi.org/10.1080/09603123.2020.1755016
Berke, P. R., & Conroy, M. M. (2000). Are we planning for sustainable development? Journal of the American Planning Association, 66(1), 21–33. https://doi.org/10.1080/00029861.2005.9581801
Bloom, D. E., & Canning, D. (2000). The health and wealth of nations. Science, 287(5456), 1207–1209. https://doi.org/10.1126/science.287.5456.1207
Boeh-Oconsey, O., & Cudjoe, S. (2005). Private sector development in Ghana: The challenges and the lessons. International Development Research Center.
Ottawa: International Development Research Center. http://irc.org/en-ev-85356-201-1-DO_TOPIC.html
Bolan, R. S. (1971). The social relations of the planner. Journal of the American Institute of Planners, 37(6), 386–396. https://doi.org/10.1080/00993367108977388
Bonsu, W. S., Adei, D., & Agyemang-Duah, W. (2020). Exposure to occupational hazards among bakers and their coping mechanisms in Ghana. Cogent Medicine, 7(1), 1–19. https://doi.org/10.1080/2331205X.2020.1825172
Brandt-Rauf, P., Burton, W. N., & McCunney, R. J. (2001). Health, Productivity, and Occupational Medicine. Journal of Occupational and Environmental Medicine, 43(1), 1–2. https://doi.org/10.1097/00043764-200101000-00001
Burns, K. N. L., Sayler, S. K., & Neitzel, R. L. (2019). Stress, health, noise exposures, and injuries among electronic waste recycling workers in Ghana. Journal of Occupational and Environmental Medicine, Toxicology, 14(1), 1–11. https://doi.org/10.1186/s11995-018-0222-9
Caravanoz, J., Clark, E., Fuller, R., & Lomberton, C. (2011). Assessing worker and environmental chemical exposure risks at an e-waste recycling and disposal site in Accra, Ghana. Journal of Health and Pollution, 1(1), 16–25. https://doi.org/10.5696/jhp.v1i11.22
Chen, M. A., Jhabvala, R., & Lund, F. (2002). Supporting workers in the informal economy: A policy framework. International Labour Office.
Chukuezi, C. O. (2015). Urban Informal Sector and Unemployment in Third World Cities: The Situation in Nigeria. Asian Social Science, 6(8), 131–137. https://doi.org/10.5539/ass.v6n8p131
Clarke, E. (2005). Do occupational health services really exist in Ghana? A special focus on the agricultural and informal sectors. GhanaHealth Services.
Clarke, E. (2013). Small-scale enterprises and the informal economy. African Newsletters on Occupational Health and Safety, 22(2), 1–2. http://www.irisreductionfrica/wp-content/uploads/2015/01/AfricanNewsletter2_2012.pdf
Danum, K., Stoler, J., & Grant, R. J. (2017). Toward a More Sustainable Trajectory for E-Waste Policy: A Review of a Decade of E-Waste Research in Accra, Ghana. International Journal of Environmental Research and Public Health, 14(2), 135. https://doi.org/10.3390/ijerph14020135
Dogbevi, R. K. (2015). E-waste business in Ghana - Poor workers dying for a living. Accra, Resource Centre Network Ghana. https://www.washghana.net/node/312
Firenze, R. J. (1978). The process of hazard control. Kendall/Hunt Publishing Co.
Fischer, D., Seidu, F., Yang, J., Felten, M. K., Garus, C., Krouse-Huss, F., J., Fobil, J. N., & Kolfie, A. (2020). Health consequences for e-waste workers and bystanders—a comparative cross-sectional study. International Journal of Environmental Research and Public Health, 17(5), 1534. https://doi.org/10.3390/ijerph17051534
Fischer, T. B. (2015). Strategic environmental assessment in post-modern times. Environmental Impact Assessment Review, 23(2), 155–170. https://doi.org/10.1016/j.eiar.2009.10.016
Forastieri, V. (1999). Improvement of working conditions and environment in the informal sector through safety and health measures. International Labour Office.
Ghana Statistical Service (2016). 2015 labour force report. Ghana Statistical Service. (2019). Rebased 2013 to 2018 annual gross domestic product.
Guarini, M., Belin, A., Oulès, L., Graveling, R., Crawford, J., Lietzmann, J., & Kominarska, K. A. (2013). Occupational health concerns: Stress-related and psychological problems associated with work. European Parliament’s Committee on Employment and Social Affairs.

Guven, M. (2019). Extending pension coverage to the informal sector in Africa. World Bank.

Hudson, B. M., Galloway, T. D., & Kaufman, J. L. (1979). Comparison of Current Planning Theories: Counterparts and Contradictions. Journal of the American Planning Association, 45(4), 387–398. https://doi.org/10.1080/0194367908976980

Innes, J. E. (1998). Planning Through Consensus Building A new view of comprehensive Planning ideal. Journal of the American Planning Association, 62 (4), 460–472. 1999 Reprinted by permission of the. https://doi.org/10.1080/0194367908975712.

International Labour Office (2000). Employment and social protection in the informal sector. ILO activities concerning the urban informal sector: Thematic evaluation. International Labour Organization. http://ilo.org/wcmsp5/groups/public—ed_normi—reconfi—rel—off/documents/meetingdocument/wcms_078850.pdf

International Labour Organization. (1993). Report of the international conference of labour statisticians.

Kawakami, T. (2006). Networking grassroots efforts to improve safety and health in informal economy workplaces in Asia. Industrial Health, 44(3), 62–47. https://doi.org/10.1080/1063694060072127

Kogi, K. (2002). Work improvement and occupational safety and health management systems: Common features and research needs. Industrial Health, 40(2), 121–133. https://doi.org/10.1080/1063694020072127

Kumar, A. (1997). The informal sector in India: Trade Union initiatives. In R. Datt (Ed.), Organising the Unorganised. Vikas. pp. 283–302.

Lawanson, B. (2011). Assessment of home-based economic enterprises in residential areas of Lagos metropolis. (An Unpublished PhD Thesis), Federal University of Technology, Akure.

Litong, G., Loo, R., & Apolonio, J. (2002). An assessment of the situation of the informal sector in the philippines: A human rights perspective United Nations Development Programme.

Maloney, W. F. (2004). Informality revisited. World Development, 32(7), 1159–1178. https://doi.org/10.1016/j.worlddev.2004.01.008

Mbaye, M. A. A. (2014). The informal sector, employment, and structural transformation some operational recommendations for a productive policy. International Organization of La Francophonie.

Ministry of Finance and Economic Planning. (2018). The budget statement of the government of Ghana for the 2018 Financial Year.

Ministry of Finance and Economic Planning. (2020). Toward a Cash-Lite Ghana: Building an Inclusive Digital Payments Ecosystem.

Nwaka, G. I. (2008). The urban informal sector in Nigeria: Towards economic development, environmental health, and social harmony. Global Urban Development Magazine, 1(1), 1–11. https://www.globalurban.org/Issue1PMag05/NWAKA%20Article.html

Onyenechere, E. C. (2011). The informal sector and the environment in Nigerian Towns: What we know and what we still need to know. Research Journal of Environmental and Earth Sciences, 3(1), 61–69. www.maxwellsci.com/print/rijes/v3-i-61-69.pdf

Osei-Boateng, C., & Ampratwum, E. (2013). The informal sector in Ghana. Friedrich-Ebert-Stiftung.

Oshinoow (2007) Integrating informal sector activities in urban environmental management. [Unpublished Bachelor Thesis]. University of Lagos.

Oteng-Ababio, M. (2012). Electronic waste management in Ghana - Issues and practices,” chapters. In S. Curkovic (Ed.), Sustainable development - authoritative and leading edge content for environmental management. IntechOpen. pp. 149-166. https://doi.org/10.5772/45884

Ronis, G., & Stewart, F. (1999). V-goods and the role of the Urban informal sector in development. Economic Development and Cultural Change, 47(2), 259–281. https://doi.org/10.1086/452401

Rantanen, J. (2009). Occupational health services for the informal sector. African Newsletter on Occupational Health and Safety, 19(2), 44–46.

Rauch, J. E. (1991). Modelling the informal sector formally. Journal of the European Economic Association, 35(1), 33–47. https://doi.org/10.1016/s0048-337x(91)90065-4.

Rial-González, E., Copsey, S., & Poili, P. (2005). Priorities for occupational safety and health research in the EU-25. Luxembourg: Office for Official Publications of the European Communities.

Steel, W. F., Ujoranyi, T. D., & Ouwus, G. (2014). Why evictions do not deter street traders: Case study in Accra, Ghana. Ghana Social Science Journal, 11(2), 52–76. http://197.255.68.203/handle/123456789/6120

Stiftel, B. (2000). Planning theory. In The national AICP examination preparation course guidebook. American Institute of Certified Planners, pp. 4–16.

Stoeglehner, G., Brown, A. L., & Kann, L. B. (2009). SEA and Planning: Ownership of strategic environmental assessment by the planners is the key to its effectiveness. Impact Assessment and Project Appraisal, 27(2), 111–120. https://doi.org/10.3152/146151109x438742

Town and Country Planning Department. (2011). Zoning guidelines and planning standards. United Nations Development Programme. 2009.

Handbook on planning, monitoring and evaluating for development results.

Vanek, J., Chen, M. A., Carré, F., Heinitz, J., & Hussmanns, R. (2014). Statistics on the informal economy: Definitions, regional estimates and challenges. Women in Informal Employment: Globalizing and Organizing (WIEGO) Working Paper (Statistics), 2, 47–59.

Vos, J. F. (2003). Corporate social responsibility and the identification of stakeholders. Corporate Social Responsibility and Environmental Management, 10(3), 141–152. https://doi.org/10.1002/csr.39

World Health Organization. (2005). Regional Strategy on occupational health and safety in sear countries (No. SEA-Occ. Health-35). WHO Regional Office for South-East Asia.

World Health Organization. (2008) Stress declaration on workers health. Participants, 7th Meeting of the WHO Collaborating Centres in Occupational Health, Stress, Italy, 8–9 June. Retrieved December 23rd, 2014. http://www.who.int/occupational_health/en/

World Health Organization. (2010). Healthy workplaces: A model for action for employers, workers, policymakers and practitioners. WHO Press.

World Health Organization. (2014). Global strategy on occupational health for all: The way to health at work Recommendation of the second meeting of the WHO Collaborating Centres in Occupational Health.

Yu, E. A., Akormedi, M., Asampong, E. L., Meyer, C. G., & Fobil, J. N. (2016). Informal processing of electronic waste at Agbogbloshie, Ghana: Workers’ knowledge about associated health hazards and alternative livelihoods. Global Health Promotion, 24 (4), 90–98. https://doi.org/10.1177/ 1757975916631523
