DPU MSc ESD/SLURC Learning Alliance

Understanding urban risk traps in Freetown

MSc Environment and Sustainable Development

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POLICY BRIEF Nº 7

Key points

• Urban and peri-urban agriculture (UPA) plays an important role in Freetown's economy but its workers are at risk from intersecting environmental hazards within the city. However, addressing these overlapping hazards presents an opportunity to break cycles of everyday risk not only for urban agriculture, but for the city as a whole.

• The primary occupational risks that Freetown's urban farmers face include biological hazards from contaminated water and solid waste buildup, as well as physical hazards from heavy labour and injury due to inadequate tools and infrastructure.

• Hazards to UPA sites vary spatially and are changing along with Freetown's urbanisation patterns; in order to comprehend the intersectionality of risk, a spatial and environmental assessment is necessary to understaand how and where hazards may be addressed.

• While women in the early stages of the value chain face disproportionately higher risks, they have shown resilience through self-organization and the creation of farming associations to cope with hazards. However, in order to better enhance these existing capacities, there should be further official recognition and intervention from the government.

• Policies to alleviate occupational hazards should take a holistic approach. This could include integrating UPA into urban planning and encouraging active collaboration with urban farmers by recognising their contribution to the mitigation of urban environmental hazards.

Reframing Risk into Opportunity: The Case of Occupational Hazard in Freetown's Urban Agriculture

Introduction

Urban and peri-urban agriculture (UPA) in Sierra Leone has traditionally been seen as a pathway to increasing food security and, more recently, has been recognised for its important contribution to urban livelihoods.[1] In Freetown, UPA has potential to become a powerful mechanism for re-stabilising the city socially and environmentally after the civil war and more recently the Ebola crisis. In terms of urban risk, UPA is exposed to overlapping environmental hazards across the city: although these have a direct impact on the safety of UPA workers in the form of biological and physical hazards, they also highlight a broader narrative related to the city metabolism. Addressing hazards related to UPA therefore offers potential beyond the improvement of urban farmers' environments, to mitigate environmental risks occurring throughout the city.[2]

The authors recognise that there has been a gap in research regarding occupational hazards related to urban agriculture; the potential of UPA in breaking the cycle of urban risk traps has been even less studied. This is why the authors aim to elaborate on the intersectionality of hazards in urban agriculture and how the burden of everyday risk disproportionately falls on women. The policy brief also explores how the spatial distribution of occupational hazards can be linked to the history of Freetown's urbanisation. For the scope of this brief, the authors will consider the UPA sites that have been recognised by earlier research; however, there remains some ambiguity on what the scale of these farms are, and whether they are receiving any NGO or state support.

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Building on previous analyses of occupational hazards in Freetown, this policy brief will focus on the early stages of the value chain, namely 'cultivation', as the authors hypothesise that this is where most of the risks are concentrated. The authors recognise that there may also be significant risks in the distribution and marketing stages; however, there is currently a comparative lack of research in these areas. The policy brief hopes to create a constructive diagnosis on the occupational hazards facing urban agriculture. In doing so, the authors aim to demonstrate how UPA offers a platform to intervene in addressing the environmental injustices of the city. The authors thereby conclude by offering our recommendations for areas of further intervention and research.

Urban Agriculture and the Freetown Economy

UPA occupies an increasingly significant role in Freetown's economy. Agricultural communities have been cultivating vegetable crops in the city's mountainous peri-urban areas for many years.[3] UPA expanded rapidly during the civil war, as the country was cut off from receiving imports, leading to a dependency on internally grown produce.[4,5] Following the war, migrants and especially war widows continued to establish plots contributing to the growth of urban agriculture. A recent study indicated that 87.7% of UPA workers are part of the informal economy.[4] Thus we can see that rapid growth in UPA coincided with a period of rapid but unplanned growth in conflict-ridden Freetown; this has affected the nature and distribution of the occupational hazards faced in urban agriculture.

As of 2013, 59 UPA sites have been identified across Freetown, although there are likely to be more.[4] There are no conclusive figures on exactly how many people are involved in the occupation: this points to the high level of informality in the occupation, and one survey indicated that almost 90% of farmers surveyed cultivate and sell products informally. For the majority of farmers, UPA offers a way to enhance their livelihoods, but also serves as a primary form of income for many. A recent study indicated that for 65% of farmers UPA was the primary source of income, and an additional source of income for another 24.5%. Crops cultivated in UPA sites include potato leaves, krain-krain, cassava leaves as the dominant crops, and lettuce, carrots, and cabbage cultivated in peri-urban regions.[4]

Figure 4 shows the spatial distribution of farming sites across Freetown. Crucial to this analysis is the distribution of men and women farmers, which varies depending on the location of the UPA sites. Lumley and New England are densely populated lowland areas where UPA started emerging after the civil war, while Leicester and Gloucester in the mountainous peri-urban regions are home to more longstanding farming communities. UPA farms located in peri-urban mountainous regions, such as in Regent and Leicester are much more gender equal, whereas those in more densely populated coastal urban areas have a much higher ratio of women to men.[6]

Definitions

Occupational Hazards:
The risk that individuals face from variousoverlapping hazards at work.[1]

Urban and Peri-Urban Agriculture (UPA):
Production of crops, livestock, and fisheries within and surrounding a city's boundaries. This policy brief will focus mainly on the cultivation of crops.

City Metabolism:
The flows of resources including water, waste, people and energy, which together produce the city's ecosystem

Value Chain:
The process through which value is added to a good/service. In the context of UPA, these stages can be defined as cultivation, distribution and marketing.

Environmental Injustice:
When certain social groups are disproportionately subjected to higher levels of environmental hazards and have a lower coping capacity than others due to geographic location.

Risk Trap:
The accumulation over time of daily and episodic hazards that erodes ones capacity to act against such threats.[7]

Occupational Hazards and Risks

The nature of UPA means that it relies on many environmental conditions such as safe water sources, proper waste management, and protection from land degradation. Although the Freetown City Council (FCC) and Ministry of Agriculture, Forestry, and Food Security (MAFFS) have recognised UPA in policy frameworks in terms of food security, they have failed to factor in how urbanisation processes may affect the occupational hazards of UPA.

1. Biological Hazards

Figure 1. Urban farms in the Kingtom area situated on dumpsites

(Photo Credit: Resource and Waste Advisory Group)

In Freetown, the biological hazards that UPA workers face are mainly from exposure to contaminated water sources that are used in the cultivation stage. The source of the risk is not confined to the farm, but is closely linked to the flow of resources through the city metabolism. The drainage system in Freetown is frequently blocked by soil erosion and garbage. As a result, stagnant and contaminated water is used during cultivation. Examples of such include the eastern coastal areas, such as Allentown. Here, UPA sites are exposed to groundwater contamination, as the wells draw water from highly polluted aquifers.[8]

The UPA sites in Kingtom are located on a dumpsite where conditions foster water pollution and disease outbreak from untreated sludge (see Figure 1). During the rainy season, rubbish washes down as runoff from surrounding areas into urban farms in the low-lying coastal areas; this runoff often includes sharp objects and medical waste.9 As many UPA sites in Freetown are for subsistence farming and much of the produce never makes it to the formal markets, it can be inferred that there is little to no health standard regulation across the value chain. As such, the consumption of contaminated crops by the workers themselves can also lead to infection by water-borne diseases such as diarrhea caused by E. Coli bacteria.[10]

2. Physical Hazards

The physical hazards in UPA mostly concern physical injury and wounds due to heavy manual labour in the cultivation stage. These hazards tend to disproportionately affect female farmers. One of the key concerns for women is the difficulty of securing and transporting large quantities of water in order to irrigate their farms. Many women do not own watering cans and have to use small buckets and bowls for watering, which requires multiple trips to fetch water, therefore contributing to physical stress over time and increasing the risk of injury. These risks become particularly severe during the dry season, when nearby boreholes may dry up and fill with sediment and pollutants. In these cases, farmers must either risk using contaminated water, or travel even further to find an unpolluted water source.[11]

Figure 2. Female farmers carrying crops for distribution.

(Photo Credit: Annie Spratt)

Unregulated waste management can also contribute to physical hazards for farmers. Unenforced zoning means that some UPA sites have developed in close proximity to dumpsites. Solid waste buildup often spills over to the farms, and requires regular clearing. This includes the removal of rocks and rubbish washed into the farms (particularly severe after the rainy season). Without proper safety equipment, it could lead to severe injury from sharp objects.[6] The heavy labour involved in these tasks is particularly difficult for elderly women, and many of them suffer joint and lower back pain with age.[11]

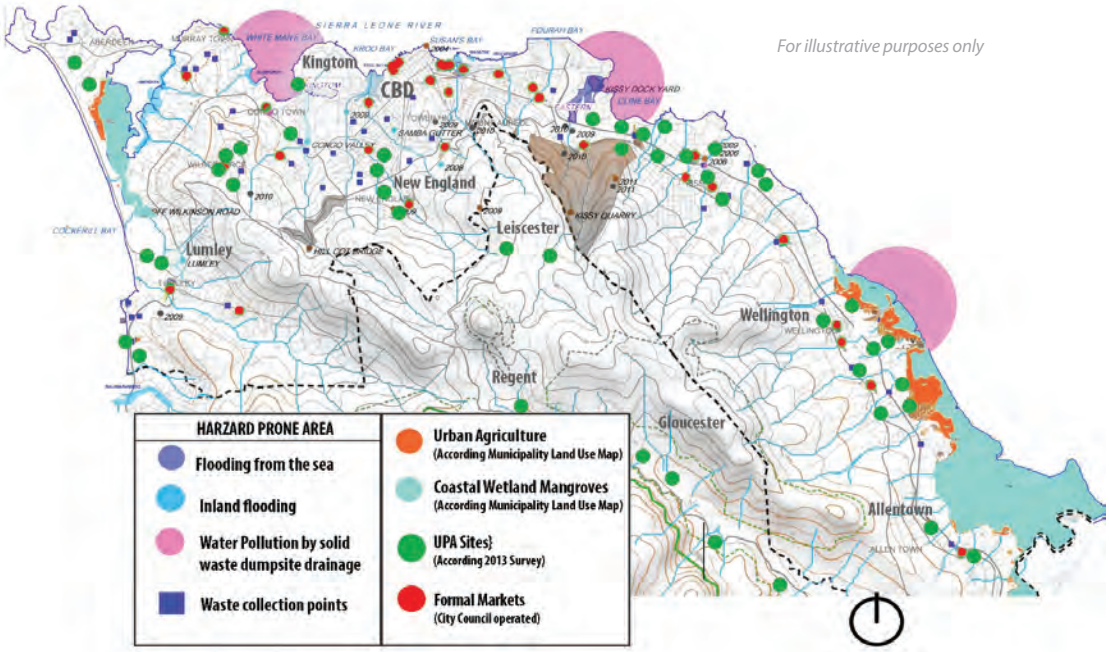
Studies have found that the vast majority of female farmers in Freetown use income from farming for essential family needs, while men are more likely to see urban farming as an entrepreneurial opportunity.[11] The pressure of balancing various household and economic needs means that women are less likely to have income or time to invest in measures to mitigate the physical hazards presented by manual labour (See Figure 2 & 3). Many banks in Sierra Leone do not provide loans for illiterate people: given the significant gender gap in literacy rates (41.33% for men, 24.86% for women), this suggests that women are disproportionately cut off from sources of credit through which they could make their working environments safer.[12]

Figure 3. Women are responsible for multi-tasking in the household including caring for children and farming.

(Photo Credit: Annie Spratt)

Spatial Distribution of Occupational Risks in Urban Agriculture

Figure 4. UPA sites in Freetown and distribution of environmental hazards



(Source: Adapted from the Freetown Municipality Hazard Prone Areas 2013 map and Current Land Use 2013 map)

A spatial analysis of UPA in Freetown shows that occupational hazards such as water contamination, waste pollution and flooding, also manifest as risk at a city-wide scale. FCC has incorporated UPA into its official land use policy, with the eastern mangrove area and a small part of Aberdeen on the west coast reserved for farms (see Figure 4). However, Figure 4 also shows that the majority of UPA sites are located outside these zones; as such, the occupational hazards faced by Freetown's urban farmers are highly diverse. A cross-sectional analysis of such hazards coupled with active engagement from urban farming communities would reveal detailed knowledge of many of the environmental hazards present at the city-wide level, influencing the urban farming occupation. This body of knowledge would present great potential for urban risk reduction, and will be explored further in the coming section.

Many UPA sites in Freetown are located in mixed-use areas. For example, UPA sites in dense residential areas such as New England and Cline Bay are located near waste transition points that are under significant pressure from waste buildup. Due to the need for water sources, many UPA sites have gathered around rivers; however, the topography of the city means that during the wet season, waste is washed down from higher elevation inland to the sea, and collects in sites such as Lumley and New England.[6,11] As coastal-urban agriculture sites have higher proportions of women farmers, these spatial differences can also be seen to manifest in an uneven social distribution of environmental burdens.[6]

It is also important to recognise that many of the formal markets where produce is sold are located in densely populated low-lying areas (see Figure 4). There have not been many studies on the distribution and marketing stages of the value chain, but based on their spread throughout the city, it can be hypothesised that the hazards are similar to those identified during the cultivation stage.

A spatial analysis of the occupational hazards involved during the cultivation stage of UPA shows that the risks are not occurring in isolation on individual farming sites, but rather are connected to the city metabolism. This suggests the need for an integrated urban planning approach to mitigate environmental hazards related to UPA.

Stakeholder Involvement: Farming Associations and Policy Makers

The importance of UPA and food security has already been recognised in both national and local policy frameworks for development, providing a good basis for policymakers. The Wetlands Policy of 1970 reserved all state-owned wetlands for farming.[6] In line with this, FCC has established urban agriculture as one of its key productivity sectors, and designated two wetland zones as areas for urban farming in its land use plans.[13] Moreover, it has actively worked with NGOs in the past, for example by supporting the Resource Centres for Urban Agriculture and Food Security (RUAF) and Cooperazione Internazionale (COOPI) in establishing the Freetown Urban and Peri-Urban Action Platform (FUPAP) in 2006. FUPAP is a multi-stakeholder platform including NGOs, national and local government representatives as well as farming associations. It provided a vital network for communication between farmers and government institutions; however, it has not met since 2013.[6] If provided with active platforms for communication and engagement, these initiatives have the potential to engage urban farming communities and create transformative change to mitigate occupational hazards.[14]

Figure 5. The female farmer association in Freetown

(Photo Credit: RUAF)

In this context, understanding and working with Freetown's network of farming associations is crucial for any policy around risk reduction in UPA. In the absence of effective official policies, these farming associations are creating capacities to respond to hazards by pooling labour and resources. A 2011 study found 63 farming associations in operation around Freetown, many of which are made up of majority female members, and could therefore play an important role in addressing occupational hazards specific to them.[3] For example, the New England Farmers Association, which is comprised solely of widowed farmers, has set up a micro-credit scheme so that their members can invest in better equipment.[11] Additionally, some unions with a high number of young male members, such as the Wanword Farmers Association in the Congo Water region of eastern Freetown, have begun to hire out their labour to help other farmers with heavy manual tasks such as the building of coastal flood protections along farming sites.[3] The pooling of resources and capital can also significantly increase the income individuals generate, allowing UPA to fulfil its potential to contribute to urban livelihoods.[6]

The sophistication of farming associations' solutions and informal networks, suggests that stakeholders such as local governments and NGOs should seek to actively work with them in developing a response to occupational hazards. In mitigating the risks they face in their working environment, urban farmers have detailed knowledge of where exactly the pressure points of hazards in Freetown are. Thus, a collaborative approach with UPA workers presents significant potential for not only effectively mitigating occupational hazards relating to UPA, but also in improving the overall landscape of environmental hazards in Freetown.

Recommendations

The examination of UPA in Freetown shows the potential for reframing occupational hazards as an opportunity to address and rectify environmental injustices in the city as a whole. Based on this analysis, some recommendations are listed below:

1. Recognition and support for maintaining UPA sites outside of the officially designated zones in the Freetown land use plan would allow more policies to provide protection and further development of UPA as a significant contributor to the Freetown economy.

2. Integration of UPA into creative solutions for addressing environmental hazards within the city. For example, given that 80% of solid waste in Freetown is compostable or recyclable, the conversion of waste into organic fertiliser for urban farmers could be explored.[15] Solutions like this could aid in closing the loop of metabolic processes in Freetown while creating a more sustainable agricultural system.

3. Further research should aim to identify the diverse challenges for men and women farmers in distinct regions of Freetown, namely differences between coastal settlements and peri-urban environments. This research could also highlight the potential capacities that groups have developed in response to specific hazards.

4. Policy initiatives to address occupational hazards should seek to build on existing opportunities such as the FUPAP, and actively work with the knowledge and networks of farming associations. Thus, any intervention should view urban farmers as valuable partners in the mitigation of urban risk. should view urban farmers as valuable partners in the mitigation of urban risk.

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