Local authorities brief: Climate change and health for informal workers and residents in Harare and Masvingo

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Taking leadership on climate change

Urban planners in Zimbabwe face a demand to consider the impacts of climate change more now than ever before. The impacts are becoming more evident, exemplified by irregular rainfall patterns and more frequent and devastating storms, temperature extremes, including heatwaves, and in the loss of biodiversity and water stress. Cyclone Idai showed us the potential damage a single adverse climatic event can inflict within a short time.

Many people live in urban areas, but the socio-economic inequalities within urban areas mean that some are more vulnerable to the current and future impacts of climate change than others. Informal sector workers and residents who live and work in poor conditions, who have low and insecure incomes may be both more exposed and more affected by these climatic changes. They may also be responding in creative and relevant ways. Local authorities have a key role to anticipate and plan for these impacts and roles to ensure effective adaptation and to enhance inclusive urban development. This needs evidence.

Building evidence on climate change and the informal sector

Training and Research Support Centre (TARSC), in collaboration with the Zimbabwe Congress of Trade Unions (ZCTU) and the Zimbabwe Chamber of Informal Economy Associations (ZCIEA), sought to understand better the way climate change was affecting the health of informal workers and residents in Zimbabwe[2]. We aimed to answer research questions shown in *Box 1* below:

Box 1: The research questions

1. What are the key health determinants and health outcomes for informal workers and those living in informal settlements?
2. What is the interaction between these with public health, occupational and environmental health?
3. How do the current and projected impacts of climate change affect this interaction?
4. What informal workers are using to mitigate risks and enhance benefits.

The evidence was gathered from Harare and Masvingo through various methods during the period 2019 to 2021, namely a survey and focus group discussions with informal residents and workers; interviews with key informant from government authorities and local civil society and an extensive review of the literature. The report in *footnote 1* provides more details on the methods.

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[2] The research programme was entitled 'From surviving to thriving: Learning from responses to the health effects of climate change in informal workers and informal settlements of Zimbabwe'

What did we find out?

This brief provides a summary of the findings for local authorities to report back and discussion. The report noted in *footnote one* on page 1 contains the results in detail. We present the summary of findings within four thematic areas, namely:

i. Conditions affecting the health of informal residents and workers
ii. Health problems of informal workers and residents
iii. Household and community assets and approaches in responding to health risks
iv. Recommendations for local authorities and other actors

Conditions affecting the health of informal residents and workers

We found areas of investment by local authorities and others, such as in infrastructures for safe water and sanitation, and positive local practices, as well as challenges and gaps. We summarise these in *Table 1* below.

Table 1. Conditions affecting informal residents and workers' health

Living conditions			
Condition	**Positive features**	**Negative features/gaps/challenges**	**Impacts and subgroups most affected**
Water and sanitation  	Local authority investment in basic infrastructure for piped and safe water provision present (pipes, boreholes) Municipal flush toilet systems present in formal settlements. Safe sanitation in informal settlements through the use of Ventilated Improved Pit (VIP) latrines.	Water supplies are incredibly unreliable, with low and erratic functioning. Infrastructure affected by vandalism and theft. Water quality is affected by contamination from leaking pipes, seepage and rust in old lines. Flush toilets functionality affected by the unavailability of water.	Women, children and the disabled disproportionately affected- spend more time collecting water, exposed to more risks, children miss learning time.  VIP latrines are more foul-smelling when temperatures are high, fill up with water during rainy seasons.
Solid waste management 	Local authorities are providing solid waste management services in formal settlements (refuse collection)	Services are sometimes erratic, refuse collection times poorly communicated Local authorities not providing services in informal settlements.	Dumping, burning of waste when local authority services are not available/erratic- increased risks to people and the environment.
Energy for lighting and cooking 	National grid electricity infrastructure present in formal settlements. Use of solar energy for lighting at the household level.	Grid electricity erratic/load shedding. Cost barriers found on the use of solar energy.	Use of firewood, old shoes, clothes and tyres as alternatives when grid supplies are unavailable-unhealthy and environmentally unfriendly. Unreliable energy affected other aspects such as diets, food storage, street lighting and safety, learning and work opportunities for children and adults.
Housing 	Housing safe and well ventilated in formal settlements, given local authority planning standards.	In informal settlements, houses built using inferior materials and with poor ventilation.	Informal settlement housing poses a high risk to health and injury, especially during strong winds, flooding. Adverse weather events increasing due to climate change

Working conditions			
Condition	**Positive features**	**Negative features/gaps/challenges**	**Impacts and subgroups most affected**
Working conditions  *These are additional burdens as they are also affected by the above living conditions.*	Technical and financial support for waste recyclers and pickers from some government agencies in some areas, such as on organised plastic waste marketing and ensuring safety when handling it.	Poor social and legal status for urban farmers and waste pickers leading to poor working conditions (e.g. they work in the open exposed to harsh weather conditions), Higher exposure to risk and hazards owing to long working hours, travelling long distances and exposure to chemicals, heat, air and water pollution. Minimal use of protective clothing due to cost barriers	Social and legal status increases workers' susceptibility to poor health, injury and illness. Waste pickers reported injuries from physical (sharp objects) hazards and fights with competitors at waste dump sites.

"We have spent almost 20 years here without a reliable source of water." Urban farmer, Mabvuku Tafara

"Women are not safe. We wake up when it is dark to go and look for water and have no public streetlights. We have had three cases of women who were sexually abused." Plastic waste picker, Masvingo

Health and wellbeing outcomes in informal workers and residents

Informal waste pickers and urban agriculture workers reported diarrhoea, skin rashes, headaches, prolonged coughing, asthma and other respiratory problems the 12 months before the survey. Data on diseases were self-reported: we are aware of its shortcomings and limitations with regards to causality.

The working conditions described above may cause or exacerbate these illnesses. For instance, plastic waste collectors' prolonged exposure to fumes and chemicals in dumpsites and to waste materials and dehydration from walking long distances with insufficient water can cause these conditions. Urban farmers exposed to direct sunlight and dust from work in the fields and to chemicals may also lead to such problems.

Living conditions can interact with these conditions and aggravate health problems, such as from the urban air pollution from traffic, smoke and chemicals from unsafe cooking fuels noted earlier, from local, poorly sited home industries, dust from gravel roads and dumpsites.

"Our air is not clean. It has a lot of dust from roads, from the nearby cement factory and smoke from use of firewood, tyres and shoes for cooking. We have informal generator repair shops in residential areas, and the smoke from them is causing the air to be dirty. We used to have open spaces long ago to clean the air, but these spaces are no longer there." Urban farmer Mabvuku-Tafara

Waste pickers experienced occupational injuries from vehicle accidents, sharp objects and fires in dump sites and fights with competitors. Urban farmers suffered fatal injuries from snake bites and stray animals. For both groups, most of the injuries were on their legs, knees, ankles, heels, spinal cord, and pelvis and walking long distances increased their exposure to these physical risks. Women faced additional sexual abuse risks/hazards. Ergonomic factors linked to poor postures in prolonged work in fields, lifting heavy loads and standing for too long may be linked to the report of musculoskeletal injury.

"We have little knowledge on the chemical risks we face. We just read the labels on the containers we pick. Sometimes the labels will be defaced or we just ignore reading the labels as we will be in a hurry." Plastic waste collector, Hopley

Informal workers and residents said most of the hazards they face are not monitored or controlled. No site reported any testing of air quality, and while water is tested communities said they do not get the results from this. Cost barriers were said to prevent workers and residents from taking chronic problems and injuries for treatment in health services, even though these injuries also meant lost work time and income and to increase mental stress. Health services were reported to also not be able to manage these conditions.

Climatic factors such as extremes of heat and cold, flooding, drought, and water stress worsened these environmental conditions. Heat extremes made working in the open more harmful, affected the shelf life of perishables given erratic electricity supplies and costs of alternative energy sources. Difficulties in access to safe water coupled with the long walking distances to workplaces exacerbated dehydration. Water stress meant that water sources for production and household use became dry, affecting earning potential and hygiene and safe sanitation in flush toilets. These risks are projected to worsen due to climate change.

Breaking vicious cycles and enhancing virtuous cycles: Assets and capacities

We found various assets and capacities within local authorities, communities and households that were used in responding to these challenges, and local authorities were seen to have a central role in enabling and building on existing actions and capacities. Better coordinated and more comprehensive holistic efforts were seen to potentially amplify small, uncoordinated actions into wider pathways for addressing urban wellbeing.

Communities were using high literacy and education levels to share information, skills and build more robust community networks. These were important in enhancing informal work benefits, such as negotiating for higher prices by plastic waste pickers, sharing tools in urban agriculturalists, community-led road repairs, and water purification.

Urban farmers considered crop diversification, improved linkages to markets, better inputs and technical support through extension services critical in building an integrated farming ecosystem that enhances resilience and climate change mitigations. Waste pickers/recyclers valued value-addition and upcycling (as shown in the photo below). They deemed vital linkages with markets, better sector organisation/regulation and policies that promote centrally located recycling sites and waste segregation at source, particularly in enhancing their income and reduce risks in their work. Local authorities can widen information on these areas through health literacy in workplaces, community and schools. They can also coordinate any technical and financial support, given the multiple potential benefits in reducing materials that pollute the environment and contribute to climate change while at the same time addressing urban poverty and inequalities.

Upcycling plastic waste to produce goods, ZCTU, ZCIEA, Masvingo, 2019.

Risks to health and environment at work - Risk avoidance eg avoid chemical containers where they are not labelled	*Water supplies*- improving the internal linings of septic tanks, water purification measures (boiling, tablets), sinking wells, water conservation.
Drought - water conservation techniques, organic manure, switching to early-maturing crops, ground water for irrigation	*Ergonomic hazards* - use of machinery (eg push carts), hiring vehicles to carry heavy plastic waste loads (but with cost barriers)

Household risk mitigation approaches

Households were taking action on public and occupational risks in ways shown in the figure above, but felt that these measures were inadequate and that local authorities could better coordinate and support them. They suggested local authorities could drill boreholes, harvest rainwater, widen use of water conservation technologies, and monitor and report on water

and air quality. Local authorities provision of health services was appreciated but respondents noted that services were less able to deal with chronic diseases and mental ill-health, and that many services were unaffordable. They called for public health to be better funded centrally and for improvements in health worker incentives and medicines supplies to improve service quality.

> The clinics are not able to deal with our mental health problems. The nurse (health worker) who will be attending to you will also be stressed due to poor salaries and too much work.' Plastic waste collector, Hopley

Different government agencies, local authorities and non-governmental organisations are providing materials, training, awareness programmes, and monitoring and enforcing laws on these hazards. They are strengthening networks and alliances within communities to enhance collective responses. However, the common view was that these are insufficient, given the extent of the challenges, and that local authorities have a role to better coordinate, support and track their progress to ensure that measures are sustainable and include all groups.

Recommendations for improved and sustainable wellbeing

Local authorities have important convening power, authorities and duties in both controlling risks and facilitating innovation, such as through enterprise development in solid waste recycling. The informal sector workers, residents and key informants gave some recommendations on how to improve conditions, and manage the current and future impacts of climate change.

1. Local authorities can tackle the factors that are leading to risks, poverty and inequalities in urban informal sectors and settlements through:

1. **Implement inclusive, participatory, longer-term urban planning to engage with talents in the informal sector.** Local authorities' urban development plans needs to legally recognise all citizens within their jurisdictions, including in the informal sector, to include these communities in planning and review of budgets, investments and resources and communicate feedback to communities. This planning now needs to consider conservation choices that benefit current and future generations. For instance, the exploitation of wetlands critically undermines the future of water resources, given the increased projected negative impacts of climate change.
2. **Improve infrastructures as key assets for managing climate change and preventing health risks.** Shortages of water, clean energy, sanitation, and workplace infrastructures stifle productive capacities, lead to health risks and increase vulnerability to impacts of climate change. Local authorities can take a leading coordination role in providing and financing infrastructure and technologies, scaling up clean energy from biogas and solar energy that have shared benefits for local authority, community, environmental and public health. Energy and water are priorities as they affect many necessary conditions such as street lighting, food storage, sanitation, diet choices, hygiene and the environment.
3. **Integrate informal workers and residents in urban and national investment planning and enterprise development.** The economy was noted to be a crucial determinant of health and local authorities could collaborate with other sectors to:
    - Register, develop and promote standards for and support linkages to markets for plastic waste recycling, urban farmers (and other areas of informal activity), and provide infrastructure and internet to support innovation and manage risks.
    - Link urban farmers and waste collectors with larger national economic value chains, including export options, to stimulate inclusive growth, and informal sector contribution to and benefit from the national economy.
    - Improve land tenure and security for informal residents, settlements, and workplaces and protect land as a strategic asset by monitoring and enforcing laws on issues such as urban sand extraction, waste dumping, and tree cutting.
    - Support education curricula and development and marketing incentives to promote the use of green technologies such as rainwater harvesting, irrigation, clean energy, and for food processing and storage.

2. **Local authorities can improve the environments that jointly benefit public health and adapt to climate change.** This includes:
    a. **Promoting coordinated responses to alleviate water shortages** through solar-powered community shared boreholes, water distribution infrastructure, climate-smart options like rainwater harvesting, rather than individual approaches that result in inequities in access and damage to the environment. Recycled water could be made available through 'red taps' for non-drinking purposes in urban areas such as for urban farming.
    b. **Coordinating urban agriculture**, including by providing extension services, information on risks, promoting water conservation technologies, providing shared, secured farming plots to manage thefts, and promoting green technology options for improved food storage and processing.
    c. **Promoting health and environmental conditions** by monitoring air and water quality at regular intervals, communicating the results to all stakeholders; addressing pollution sources such as traffic, industries, unsafe energy sources, burst sewer pipes, and unregulated home industries; widening awareness and literacy in residents and workers on climate change, health, and green technologies; and promoting reforestation of areas degraded by firewood use, including fruit tree planting.
    d. **Planning and incrementally implementing sustainable solid waste management** through waste segregation at source, central waste collection and recycling centres, management of risks for waste collectors at dumpsites and improved communication to households of waste collection plans and timings.
    e. **Resourcing public sector primary care services,** promoting health worker skills; ensuring access by all, including for people living with disabilities, to quality services, and primary health care approaches for management and surveillance of the common health problems experienced by informal sector workers and residents, including mental health, occupational illness and injury, and chronic conditions.

3. **Local authorities can institutionalise and communicate the principles, rights and duties that should guide responses to current and future issues,** including by ensuring:
    f. ***Equity* in access** to information, investment, health and other services, including for women, children and those living with disabilities.
    g. ***Appropriate sequencing* and prioritising measures** with potential for broader positive population/ sectoral impacts, such as for energy and water.
    h. **'A *whole of society'*** approach and ***cross-sectoral collaboration*** with local authorities providing leadership in these areas.
    i. ***Protecting rights*, ensuring capacities for duties,** and ensuring legal recognition for all residents, including those in informal settlements.

We are sharing this brief to hear your feedback on these findings and recommendations

1. Are the findings valid and relevant?
2. Do you agree with the recommendations? What else would you propose?
3. Are there recommendations that fit into your current short term and long-term plans?
4. What can you do to implement recommendations outside your existing plans?
5. What mechanisms currently exist for coordinating the areas shown in the recommendations?