

Briefing

Urban; Climate change

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Policy pointers

Policy implementers at municipal level, health officials and international development agencies should recognise informal workers' key economic contribution and the heightened health risks they face, including those arising from climate change.

Policy implementers, officials and agencies should co-produce strategies with informal workers to achieve multiple benefits for health and resilience, such as enhanced access to healthcare and social protection.

Informal workers require support from development practitioners to gain skills, diversify livelihoods and promote adaptive behaviour; vulnerable labourers, including women and youth, need particular attention.

Many informal labourers live in informal settlements, so fostering workers' health and resilience will also require access to incrementally improved housing, tenure security, and clean energy, water and other infrastructure.

Prioritising action on health and climate resilience for informal workers

Most workers in the global South eke out a living in the informal economy, where work is intermittent, uncertain and precarious, yet their work makes an important economic contribution. Climate change impacts — including heat stress, downpours, floods, and clean water scarcity — already impose a heavy toll on informal workers' livelihoods and health. These threats interact with other challenges such as use of unclean energy, hazardous living and working conditions, limited social protection, and gender-inequitable burdens. This briefing explores climate-related health threats facing informal urban workers in India and Zimbabwe drawing on recent research. It describes the main challenges and identifies priority areas for action: improving institutional arrangements; addressing marginalisation; and generating benefits for informal workers' health, wellbeing, climate resilience and livelihoods.

In the fast-growing cities of Africa and Asia, formal employment opportunities are usually limited. Urban informal work typically makes a substantial contribution to economic activity and provides the leading source of livelihoods. In 2019, labour force surveys indicated that over 88% of India's employment and almost 80% of Zimbabwe's employment was informal.¹

Informal workers, who often live in informal settlements, are a forgotten group in urban climate responses. They face heightened environmental and health challenges, exacerbated by unplanned urbanisation and climate change. Housing, water, electricity and food generally cost more in cities than in rural areas, and informal workers face multiple vulnerabilities in their working and living conditions. Informal workers' health should be a priority, yet policy implementers, urban planners, and municipal authorities often neglect it.

Ill health is a major cause of falling incomes and poverty among informal workers. This briefing explores the environmental health risks facing informal urban workers and the actions needed to address them (Box 1).

Problems worsen with climate change

Heat stress

Many informal urban workers in India and Zimbabwe live in small, often single-roomed homes with poor ventilation, exposing them to extreme heat. Affordable building materials such as corrugated metal sheets typically transmit heat into the living space, where people often have to cook. Exacerbating their limited access to affordable, healthy foods, informal workers' frequent lack of refrigeration leads to their food spoiling quickly in the heat, jeopardising food

Informal workers face heightened environmental and health challenges, exacerbated by unplanned urbanisation and climate change

safety as well as nutrition. Water shortages compound the problems.²

Enclosed spaces in the home and near hot factory machinery typically cause heat stress, exhaustion and reduced productivity.

In Indore, informal factory workers reported difficulty taking breaks, which aggravates the health risks of heat. Where toilet facilities are limited, workers (especially

women) may deliberately drink less water, risking dehydration. Heat also affects outdoor workers, such as informal urban agriculture workers, street vendors and waste pickers. In Harare, some plastic recyclers walk more than 15km daily, often along dangerous roads and in high temperatures.

“I work in the chips factory from 9am to 6pm. I work close to a boiler which emanates heat ... After returning from work, it is me who has to cook [on] the chulha [traditional biomass-burning oven] in my single-room house. I feel drained out by the end of the day.” — Hansi, factory worker, Indore³

Downpours

Climate change increasingly drives heavy downpours, bringing health and humanitarian problems including in Zimbabwe. In 2019, Cyclone Idai flattened settlements in eastern Zimbabwe, killing more than 340 people.

Urban informal workers also face ‘everyday’ water-related risks,⁴ often linked to low-quality shelter and inadequate infrastructure. Downpours can wash raw sewage into dwellings, streets or poorly protected water wells. Many informal workers in India and Zimbabwe share

substandard toilet facilities, with risks of faeco-oral and genito-urinary infections. Some have to urinate and defecate in the open. In Indore, households that constructed a toilet sometimes lacked access to a sewerage system.

Rain entering homes through inadequate roofs and walls leads to damp, which causes respiratory ill health. In Indore, some informal workers sought to reduce the cost of grain by bulk buying, but damp conditions typically hamper food storage. Damp often damages documents such as the identity papers that Indore’s workers need to claim public assistance. Rain also makes it more likely that people will cook indoors, increasing air pollution from unclean fuels and predisposing women and children to respiratory illness.

Inadequate waste collection

Climate change makes garbage a bigger health problem. Most informal settlements lack regular waste collection. Residents in Harare’s Mabvuku–Tafara neighbourhoods reported a three-month gap since their last rubbish collection. Hotter or wetter conditions exacerbate pests and disease vectors, exposing residents and informal recyclers to risks of malaria, cholera and typhoid. Backyard incinerators in Zimbabwe add to pollution.

Water scarcity and quality

Informal workers must often purchase water, including as an input for food vending and urban agriculture. Women disproportionately bear the burden of fetching water.⁵

“It is my and my daughter’s responsibility to fetch water from the borewell. In summers when there is a lot of crowd, I become late owing to fetching water ... The [factory] manager gets angry and sometimes deducts my wages.” — Geeta, factory worker, Indore³

Fetching and carrying water can cause health problems because of the water’s weight; women and girls are also exposed to violence, sexual exploitation and disease.⁶ In Harare, women reported water truck operators demanding sex in exchange for water.

Shallow boreholes often dry up during the summer, especially with receding groundwater levels due to climate change. Many boreholes in Zimbabwe’s cities are close to pit latrines. Water scarcity inhibits hand washing, which aggravates disease risks. Piped water, which is far from universal, may be low quality or in short supply. During the COVID-19 pandemic, water scarcity in Indian and Zimbabwean informal settlements impaired the fight against the disease.

With climate change and rapid urban growth increasing people’s reliance on groundwater,

Box 1. Addressing risks facing informal workers in India and Zimbabwe

This briefing is an output of collaborative research¹¹ involving IIED, the Urban Health Resource Centre (UHRC) in India, and in Zimbabwe the Training and Research Support Centre (TARSC), Zimbabwe Chamber of Informal Economy Associations (ZCIEA), and Zimbabwe Congress of Trade Unions (ZCTU).

In India, research focused on Indore, one of the country’s many million-plus cities. Qualitative interviews took place with 90 informal workers: factory workers, peri-urban agricultural labourers, female domestic workers, street vendors, construction workers, home-based workers and young people pursuing various livelihoods.¹²

In Zimbabwe, research took place in Harare (the capital) and a smaller city called Masvingo. The project surveyed more than 400 informal workers, mainly engaged in plastic recycling and urban agriculture. The partners also conducted six focus group discussions with more than 200 participants and explored water access and quality as a major health and environmental issue.^{8,13}

groundwater pollution has long-term consequences for human health and urban agriculture. Reduced rainfall, receding groundwater, increased demand and rising temperatures all compromise water availability and quality. High nutrient loads in water (eutrophication) from sewage, waste or industry often worsen the situation. In Zimbabwe, unsustainable informal urban farming (such as in wetlands, on steep slopes and on the banks of streams) has caused land degradation and ecosystem damage, further compromising water availability.

Energy supply

Energy supply, climate and health problems frequently interconnect. Sometimes extreme weather events and energy provision link directly, such as when droughts affect hydropower or winds damage electricity infrastructure. Energy supply problems also cause indirect harm to health and wellbeing.

For instance, in Zimbabwe, without street lighting, fetching water becomes less safe, especially for women, girls and disabled people. Without clean power in the home, people use more candles, kerosene and polluting indoor stoves. In Harare and Masvingo, many residents who had electricity supply reported that power was usually available only at night. Some households avoid nutritious foods like beans because of lengthy cooking times, while others use highly polluting waste materials (such as tyres or shoes) as cooking fuel.⁷

“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.”

— Urban farmer, Mabvuku-Tafara, Zimbabwe⁸

It is mainly women who cook and face the greatest risk of respiratory and cardiovascular diseases.⁹

People are more likely to use harmful fuels when climate impacts affect their earnings. This can be a vicious circle. For example, charcoal demand in Zimbabwe may rise when there is no electricity, but its production may denude stream banks, drive soil erosion and worsen floods. Household fire risks also increase, sometimes resulting in people losing their identity documents, homes and livelihoods — especially women, who more often work from home.

Areas for action and further research

Our research identified three priority areas that can promote health and climate resilience among informal workers and informal settlement residents.

Improve institutional arrangements

Social service delivery and safety nets.

Improved healthcare access and other social protections will foster informal workers' health and resilience. In India, more efficient service delivery at government offices, with civil society organisations' support, will enable more people to access basic documents, services and benefits like food subsidies. Where schemes require proof of a local address, landlords should support migrant workers to provide their own proof of address, such as a bill. In Zimbabwe, social safety-net provision should be a government priority, as ZCIEA and others advocate.

Secure tenure for urban agriculture can boost food security and nutrition, as well as improve livelihoods and climate resilience. In Masvingo, just 2% of farmers reported owning the land they farm; typically, they farm temporarily vacant plots destined for other uses. Providing tenure security will encourage sustainability, whereas unregulated urban agriculture, especially in wetlands, can damage water supplies and worsen climate risks.

Collective action to build effective coalitions.

In Indore, UHRC helped women's slumdweller groups and other residents negotiate collectively for enhanced water supply and request the municipal corporation to improve infrastructure (such as extending sewerage and providing streetlights). In Masvingo, a 'champions team' has facilitated dialogue between informal workers, the local authority and central government agencies.¹⁰

Foster social cohesion to support resilience.

In Indore, informal women workers collectively saved and borrowed money to self-build housing, brick by brick. Farmers shared tools in Harare, and waste pickers pooled resources to organise better transport.

Build on local wisdom. In Indore, UHRC created booklets that highlighted local solutions, such as enhancing storage of water and food grains and ways to access benefits.

Provide long-term support. Local authorities, national officials and international funders should prioritise consistent support for informal economies and low-income urban communities. A long-term strategy is important, because officials usually focus only on visible 'quick fixes'. Many resilience measures can take years to gradually reduce risks.

Address marginalisation

Skills acquisition, livelihood diversification and value chain regularisation will make

informal livelihoods more resilient and less polluting. In Indore, some vegetable vendors have diversified into flower garlands for festivals; other informal workers have built links with several employers to obtain additional work during different seasons. In Zimbabwe, plastic pickers usually lacked business skills and wanted certification for buyers, additional waste collection points, training to avoid contaminated plastics and regularised washing spaces to reduce water pollution.

Promote individual adaptive behaviour

including better-segregated waste, cost-effective purchasing and bulk food grain storage, use of local traditional technologies for water storage tank construction, and ways to manage heat stress.

Develop gender-equitable approaches for women's multiple burdens.

Female informal workers often perform triple roles: domestic work, caregiving and wage earning (sometimes via support for spouses' livelihoods). Multiple pregnancies and poor nutrition often deplete mothers' health and earning capacity. Inadequate energy, water and sanitation in informal settlements impact on women disproportionately, with climate change exacerbating these burdens. Some women cannot easily work because of restricted mobility. Those who can work independently may have reduced earning opportunities owing to their lower educational levels and poorer skills, combined with gender-biased wages and traditional gender roles. Single female primary earners and heads of households are especially disadvantaged. Informal female workers need better access to healthcare and to programmes building their skills and promoting their employment.

Pursue multiple benefits for climate, health and livelihoods

Enhancing clean energy provision, especially long-term investment in renewable sources, is key to bettering informal workers' health and offers multiple advantages. For example, collecting solid waste for biogas generation in

Zimbabwe could provide energy for livelihoods and foster health as well as gender equity. In India, access to liquefied petroleum gas needs to be made easier and affordable in the short term.

Support for incremental self-building offers advantages in informal settlements, as noted above in Indore.² Residents can gradually reinforce their housing structures and make them more climate resilient. Community microfinance can help informal workers improve their housing and manage costs flexibly to match their fluctuating incomes.

Help youth overcome challenges and link them to capability- and skill-building opportunities, building on their aspirations. Many youths in Indore were already working towards skills acquisition, entrepreneurship or other forms of livelihood. Girls especially aspired to better socioeconomic status and increased mobility.

Further research

Interdisciplinary urban researchers should identify inclusive, cost-effective actions that government officials, international development agencies and in-country civil society organisations can undertake with communities to address the interrelated challenges. For instance, action to save water and recharge groundwater will help mitigate water shortages and resulting health burdens. Green technologies, value-added recycling and other interventions in urban agriculture will merit investigation. Such approaches can contribute to longer-term health and development gains and to a lower-carbon future.

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Knowledge Products

The International Institute for Environment and Development (IIED) promotes sustainable development, linking local priorities to global challenges.

TARSC is a non-profit organization focussed on skills building, research and technical support for health equity and participatory action research in Zimbabwe.

ZCIEA is a trade union for informal workers that engages in organising, educating, advocating and representing members across Zimbabwe.

ZCTU seeks to promote workers' economic and social rights in Zimbabwe, including efforts to foster occupational health and safety.

UHRC is a non-profit NGO that seeks to advance health, socio-economic empowerment, and nutrition among disadvantaged urban populations in India.

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Notes

¹ ILO, Statistics on the informal economy. <https://ilostat ilo.org/topics/informality/#WG> / ² Agarwal, S and Kothiwala, K (16 December 2021) Multiple Housing and climate-related vulnerabilities of informal workers in Indore, India. www.iied.org/multiple-housing-climate-related-vulnerabilities-informal-workers-indore-india / ³ Agarwal, S, Kothiwala, K and Verma, S (forthcoming) From risks to resilience: action research into informal workers' health and wellbeing in Indore, India. IIED, London. / ⁴ Satterthwaite, D, Sverdlik, A and Brown, D (2019) Revealing and responding to multiple health risks in informal settlements in sub-Saharan African cities. *Journal of Urban Health* 96(1) 112–22. <https://pubmed.ncbi.nlm.nih.gov/29873038/> / ⁵ Ray, I (2007) Women, water, and development. *Annual Review of Environment and Resources* 32 421–49. www.annualreviews.org/doi/abs/10.1146/annurev.energy.32.041806.143704 / ⁶ Sommer, M, Ferron, S, Cavill, S and House, S (2014) Violence, gender and WASH: spurring action on a complex, under-documented and sensitive topic. *Environment and Urbanization* 27(1) 105–16. <https://journals.sagepub.com/doi/full/10.1177/0956247814564528> / ⁷ TARSC, ZCTU and ZCIEA (2020) Climate change and the informal sector in Zimbabwe: mitigating risks and enhancing benefits: Report of findings from the focus group discussions. / ⁸ TARSC, ZCTU and ZCIEA (2021) Propelling virtuous and breaking vicious cycles: responding to health and climate risks for informal residents and workers in two areas of Zimbabwe. TARSC, Zimbabwe. / ⁹ WHO (2016) Burning Opportunity: Clean Household Energy for Health, Sustainable Development, and Wellbeing of Women and Children. / ¹⁰ Kadungure, K and Sverdlik, A (25 August 2021) Making strides to improve health and climate resilience in Zimbabwe's cities. www.iied.org/making-strides-improve-health-climate-resilience-zimbabwes-cities / ¹¹ IIED, Addressing risks facing informal workers. www.iied.org/addressing-risks-facing-informal-workers / ¹² Agarwal, S, Kothiwala, K and Verma, S (2022) Transitioning from health and well-being risks to resilience: action research with informal sector workers and settlement dwellers in Indore, India. Urban Health Resource Centre. / ¹³ TARSC, ZCTU and ZCIEA (2019) The health effects of climate change on informal workers and informal settlements in Zimbabwe: literature review. TARSC, Zimbabwe.

