# Supporting informal economy workers and residents

## in preventing and mitigating climate change effects

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In recent years, Zimbabwe has witnessed a shift in the onset of the agricultural season, inter- and intra-seasonal rainfall variability, increasing average temperatures, and an increase in the frequency and severity of extreme weather events such as droughts, hailstorms and cyclones. Marginalised communities such as informal workers and residents of informal settlements are more vulnerable to such climate change impacts due to the precarious nature of their living and working conditions. However, the same communities could be agents of change due to their innovations and creativity. This brief summarises the implications relevant to climate change and climate change policy. It draws on national policy documents and findings from research implemented by TARSC, the ZCTU and ZCIEA on health in informal workers and informal settlements in Harare and Masvingo, Zimbabwe.

**Key messages:**

1. Zimbabwe makes an insignificant contribution to global greenhouse gas (GHG) but has suffered the brunt of climate change, especially through the increased frequency of droughts, floods and epidemics.
2. People in informal settlements and informal sector workers lack access to safe drinking water, and sanitation, and live in overcrowded dwellings that are not durable or structurally sound, without security of tenure. Many of these challenges will be worsened by climate change.
3. Informal settlements and workplaces should be upgraded in ways that take climate change into account, especially through interventions that enhance access to clean energy and water sources, foster green technology and ensure sanitation and hygiene.

## Climate change in Zimbabwe

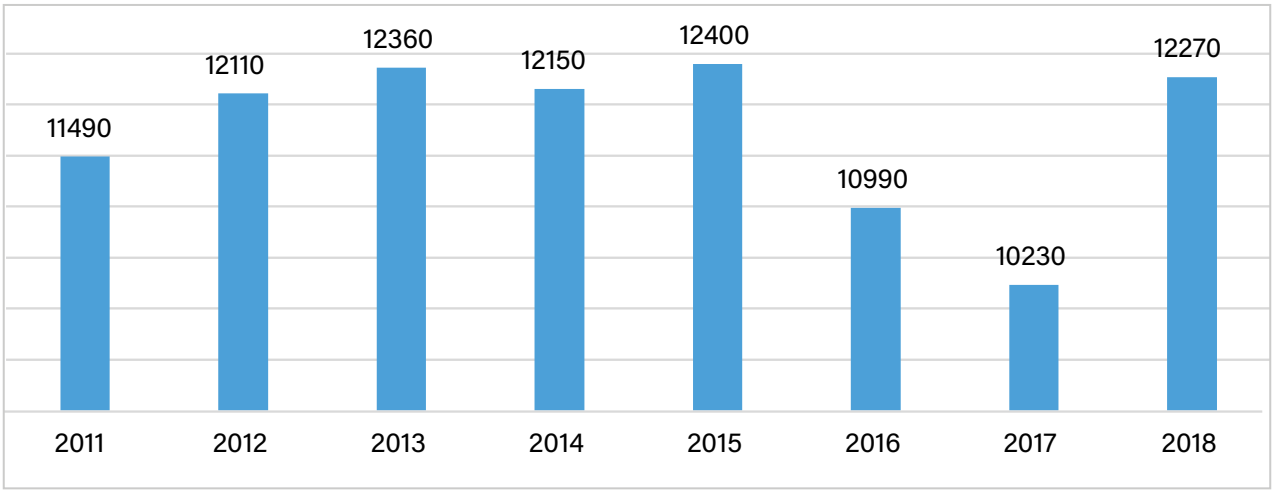
Climate change has been widely recognised and accepted as a reality affecting communities throughout the world, and it poses serious problems with far-reaching social, political, economic and environmental consequences.

While the impacts of climate change are likely to stall the country's overall progress, the harshest effects are being felt at the local level, mostly by poor and disadvantaged communities. The Government of Zimbabwe has developed policies, institutional structures and processes to promote a climate-resilient, sustainable low-carbon future. The country's National Development Strategy 1 (2021-2025) puts climate change mitigation and adaptation as one of the priority responses across all areas. This brief explores their implications for informal workers and residents, and ways to bring these communities more centrally into the response to climate change.

Cyclone Idai: Image: REUTERS/Philimon Bulawayo; Stats: Chatiza, Oxfam, 2019

The Government of Zimbabwe developed several policies and strategies to guide the country in responding to climate change whilst strengthening practices to reduce its impact. These policy documents note that Zimbabwe's contribution to greenhouse gas (GHG) emissions is insignificant (see *Figure 1* below), yet the country has suffered the brunt of climate change in recent years especially through the increased frequency of droughts, floods and epidemics.

**Figure 1: Zimbabwe's carbon dioxide emissions in thousands of tonnes (2011-2018)**




Source: The Global Economy (website), 2018

In Zimbabwe, the energy sector stands at the centre of the climate change policy discourse because it is the major contributor of GHG emissions. Given the unreliability of electricity and the load shedding which has become the norm in urban areas, alternative sources of energy are the solution. Zimbabwe is endowed with abundant renewable energy resources such as solar and hydropower, biomass, geothermal, and wind power, that present opportunities for investment.

While the country's focus is mainly on adaptation to climate change, this does not make mitigation irrelevant. There is a need to promote both mitigation and adaptation. Various activities are being implemented to reduce GHG emissions and to promote a green economy.

Urban plot in Masvingo, keeping harvest stalks to retain moisture, TARSC, 2021

## Climate change challenges and responses in informal work and settlements

Increased rural-to-urban migration and the resultant deteriorating living conditions of people, particularly in urban areas, have contributed to the growth of informal settlements. Informal settlement communities generally lack access to safe drinking water, basic sanitation services, durable and structurally sound dwellings, security of tenure, and live in overcrowded housing.

Many of these challenges will be worsened by climate change. Our research on the health and economic consequences of climate change in informal workers and informal settlements in Harare and Masvingo revealed many challenges linked to climate and environmental health hazards as shown in *Table 1*.

**Table 1: Challenges linked to climate change and health**

| Feature | Impacts and Responses (solid waste management workers) | Impacts and responses (Residents/urban agriculture |
|---|---|---|
| Extremes of Heat | Reduced work-time and efficiency | Unavailability of water (linked to dehydration), sanitation smells, food with reduced shelf life, inadequate waste management leads to increased vectors |
| Extremes of cold | Reduced work efficiency | Health risks, e.g. colds and flu |
| Flooding | Movement restricted, uncomfortable working environment | Water contamination, sewer blockages increase risk of infection |
| Air pollution | Direct health impacts – respiratory, reduced productivity | Contaminates water, acid rain |
| Water pollution | Reduced water for production, water-borne diseases | Crop damage, food, diets affected |
| Drought | Water for farmers, food for waste pickers, less access to waste | Almost same as extremes of heat + opportunity costs |

Source: TARSC, ZCTU, ZCIEA, 2020a

## Extremes of heat

Recent heat waves have caused major discomfort and ill-health, particularly among informal workers and residents of informal settlements. Low-quality dwellings in these areas often raise temperatures further, as most are made of plastics and corrugated iron sheets. Of the 420 survey respondents in our research, most reported experiencing occasional to very frequent **extremes of heat** over the past five years.

This was particularly noted by those involved in urban agriculture, who reported that heat extremes affect their work and living conditions, due to reduced availability of water for irrigating crops and domestic use. Many reported the drying up of wells and boreholes in their areas. These started drying up in the summer season beginning in August, putting pressure on residents and workers as they would have to fetch water from less accessible sources.

> "We use water from a spring (kumatombo). We travel for about three kilometres to the spring, and people with mobility problems like those with arthritis and the disabled are worse off. In October we wake up as early as 2am and come back at about 11am. There will be many people there. Some school children especially those in crèche and Grade 1 are missing school as the parent will be fetching water."
>
> - Urban Farmer, Mabvuku-Tafara

Heat extremes also have an effect on sanitation facilities, including bad odours from toilets, and poor hygiene practices due to water scarcity. The absence of municipal refuse collection during heatwaves leads to rotting waste and insect breeding, increasing the risk of mosquito-borne and other diseases, such as malaria, cholera and typhoid. Those involved in urban agriculture are exposed to prolonged heat and sunshine, and suffer from dehydration, headaches and heat exhaustion.

The rise in temperatures also increases the risks of fire, particularly in overcrowded informal settlements built with flammable building materials and using unsafe energy. Smoke from fires and from solid waste contains carbon monoxide, nitrogen oxides, and various volatile organic compounds that reduces air quality locally and in areas downwind of fires (TARSC, ZCTU, ZCIEA ,2020a). There is a vicious cycle where climate change raises the risk of poor health amongst the very residents who are least responsible for climate change.

### Responses to extremes of heat

Residents and workers of informal settlements have adopted environmentally friendly agricultural practices to conserve water and foster resilience. In addition, farmers have been urged to adopt the *Pfumvudza* concept (a conservation agriculture practice) in response to the climate-induced droughts that have reduced food production over the past few years. This concept gained traction in the 2020/2021 farming season and a number of urban farmers have adopted it. Besides the *Pfumvudza*, there are other practices embraced to adapt to climate change, including reforestation and restoration of wetlands.

## Air and water pollution

The major sources of pollution in informal settlements and other urban areas include smoke and fumes (from burning tyres, veld fires, car exhaust, electricity generators, rubbish pits/dumpsites, firewood and fossil fuels) and dust from roads, construction sites, cement factories, and/or steel manufacturing. Because of overcrowding and a lack of basic services in informal settlements, our research has also established the presence of pollution from pit latrines (toilets), burst sewerage and other water pipes, dumpsites and burning of cadavers from hospitals. Smoke exposure increases respiratory and cardiovascular diseases.

Residents and workers in all study sites reported that pollution of water sources is worsening. Open sewers, seepage of sewage and discharge of industrial effluent into streams and water sources, and waste from dumpsites and from local abattoirs all contribute to water pollution. Those practising urban agriculture reported that the water sources they use are being polluted by chemicals, fertilisers, leading also to unwanted plant growth in reservoirs and water sources.

### Responses to pollution

There are community and household-level approaches to deal with water and air pollution, but the limited monitoring of water or air quality limits information to and awareness of affected communities. Not informing communities weakens enforcement of existing laws, such as in the attempts to discourage the use of burning tyres done without adequate knowledge on the related legal provisions in the Public Health Act. Furthermore, unless people can access clean, affordable energy supplies for livelihoods, lighting and cooking, they will continue to use sources that are harmful to their health and environments. This raises the need to enhance provision of **affordable, clean energy sources** to support health, livelihoods, and climate resilience.

In Masvingo, some residents and workers noted that those involved in plastic picking and recycling were participating in Environmental Management Agency (EMA)-organised health clubs and skills building. The **EMA's health clubs and capacity-building should be expanded to include consideration of climate change,** given the importance of reducing plastic waste and pollution.

Water pollution worsens the impacts of climate change, further reducing the amount of water available for human use in the face of drought and other climate-related impacts. With climate change making people more dependent on groundwater sources, pollution of these sources has long-term consequences for human health.

Improving climate and environmental conditions calls for more regular testing and public reporting of air and water quality by local authorities and other officials to identify and address pollution hotspots, including from motor vehicles. Communities, local authorities and the EMA can all play a role in mapping risks, raising awareness, taking action, and sanctioning polluters.

To be effective, such approaches will need to be owned and understood by the community, through **participatory urban planning strategies.** Key priorities include: **green spaces** in urban areas, **protection of wetlands** and **climate-friendly technologies in agriculture and recycling;** and reforestation and cultivation of **fruit trees,** all of which have potential gains for health, nutrition, and climate resilience.

# Climate change policy and strategies

As noted earlier, the Government of Zimbabwe has developed policies and strategies to guide the response to climate change and reduce its impact.

## National Climate Policy

The National Climate Policy (2017) guides climate change management in the country, and aims to enhance national adaptive capacity, scale up mitigation actions, facilitate localisation of global policies and ensure compliance with the global mechanisms. The policy emphasizes that good health is a pillar of the country's development and commits to climate-proofing the health sector and other sectors. It seeks to strengthen capacity to monitor and address changing disease patterns due to climate change, including through education, learning, capacity building, and early warning systems, preparedness for and response to disease risks caused by extreme weather. The policy promotes weather indexed insurance and particular efforts to understand and act on the impacts of climate change on women, children, youth and people with disabilities in Zimbabwe.

## National Development Strategy 1 (NDS 1)

The National Development Strategy (NDS 1, 2020) is the country's economic blueprint for 2021 to 2025. The Development Strategy recognises health as a fundamental human right under the Constitution of Zimbabwe. It highlights that health gains and development are under threat due to economic challenges, compounded by climate change and health-related shocks such as cholera and the Covid-19 pandemic. It further acknowledges that many key health programmes are still largely funded by development partners. It highlights that in the absence of planned interventions, informal settlements have sprouted, putting pressure on the ability of the local authorities to provide services. The plan, therefore, seeks to upgrade informal settlements with basic services, infrastructure and amenities.

## National Climate Change Response Strategy

Zimbabwe's National Climate Change Response Strategy (NCCRS, 2014) guides national measures to address the impacts of climate change and variability. The Strategy acknowledges that climate change is altering the ecology of some disease vectors, and thus the spread of diseases. Malaria has been used as an indicator in many health assessments to assess the potential impact of climate change on the health sector as its distribution and seasonal transmission correlates significantly with temperature and rainfall in the country. Strengthening the health sector responses has thus included strengthening health surveillance and managing diseases that occur because of impacts of climate change.

## National Climate Change Learning Strategy

Zimbabwe's National Climate Change Learning Strategy (2020) systematically identifies critical learning and skills needed for sectors like Health, energy, agriculture and education to address climate change. The proposed actions include the education, capacity building, climate-proofing investments; weather-indexed insurance and health monitoring measures discussed earlier.

# Strengthening support for and integration of informal sectors

Climate change has multiple impacts, and informal residents and workers are particularly affected because of the challenges they already face. Without reliable clean energy, for example, practices that we found in the research like using old shoes, clothes and tyres to add to firewood for cooking can contribute to pollution and harmful chemical emissions, exacerbating health risks and climate change. Many trees have been cut down for firewood or the land has been cleared for farming, exacerbating deforestation and soil erosion and contributing to climate change especially in areas surrounding informal settlements.

Poor **access to adequate clean energy** negatively affects household food choices, diets and food costs. It undermines water safety as drinking water may not be boiled when necessary while poor lighting affects community safety. Clean energy deficits lead to tree cutting and use of polluting fuels, increasing public health risks and degrading environments.

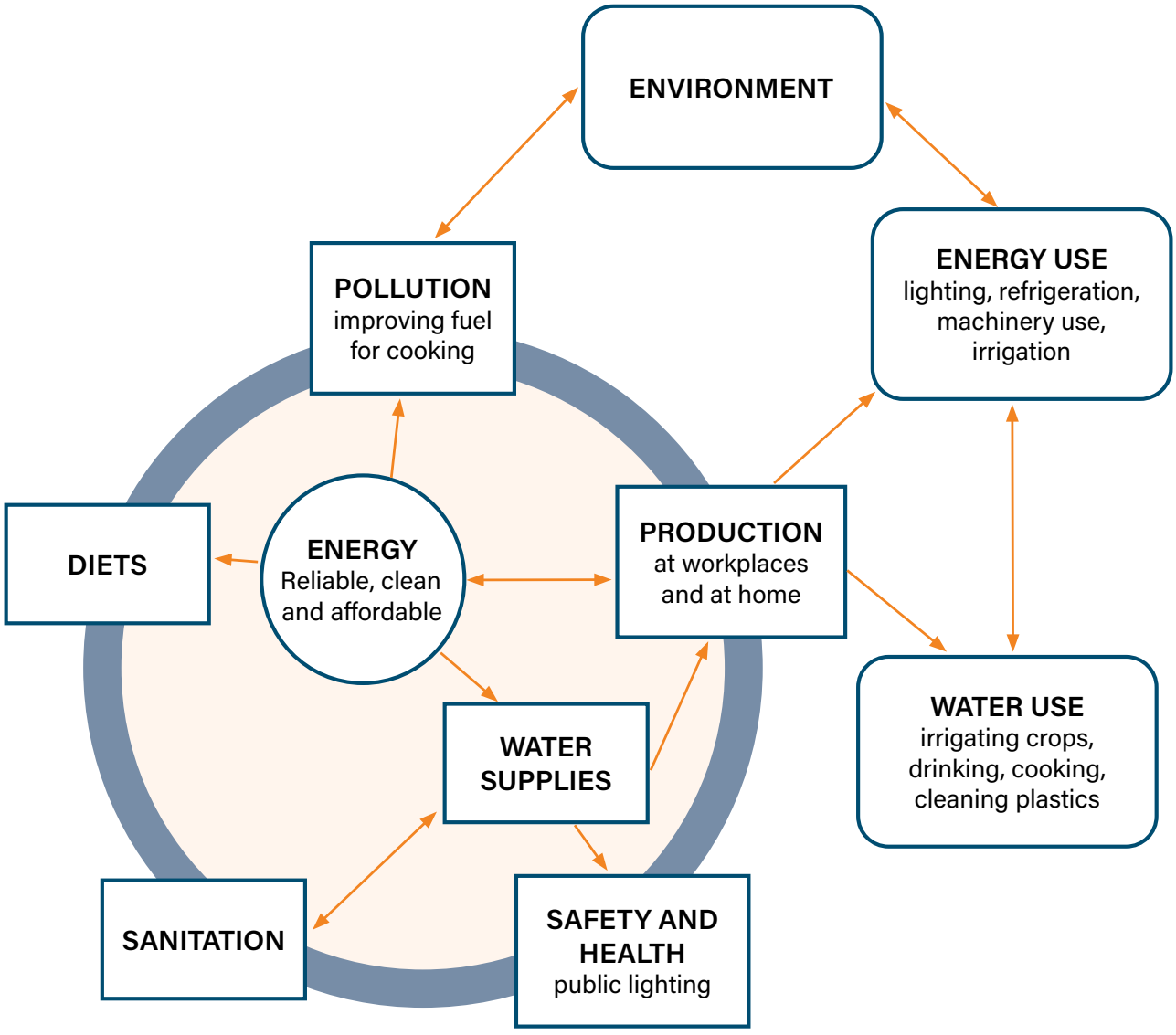
Zimbabwe has policies and plans to address the challenges generated by climate change. For informal workers and residents, these plans need to intensify measures for housing, water and sanitation, clean energy and green spaces. This includes

- **water harvesting** for domestic and industrial uses;
- the **conservation of ecologically-fragile areas such as wetlands;**
- local authority development, rehabilitation, maintenance and protection of **surface and groundwater** resources and support for efficient water use systems and practices.
- **upgrading infrastructure and capacitating local authority waste collection services,** including by encouraging **partnerships with informal workers involved in solid waste management and recycling.** Informal workers can convert biodegradable waste into compost, to improve soil fertility and supporting climate mitigation.

Low-income residents could work collectively and with local authorities on community-based renewable energy projects. Clean energy provision can strongly support gender equality and promote the health of women and children, who disproportionately bear the burden of unclean cooking fuels.

The issues and interventions are linked, as shown in *Figure 2*.

**Figure 2: The role of energy and water supplies for home and workplace conditions**




Source: Authors, 2020

In line with the NDS 1, regularising and upgrading of informal settlements (including ensuring basic infrastructure, social services, and amenities) should be prioritised. In particular, there is need for **climate-resilient upgrading measures including low-carbon housing designs, enhanced provision of clean energy (for lighting, cooking, and heating), and all-weather roads.** Housing structures should be built in areas permitted by law and known by local authorities. Building codes should be considered when constructing shelter and infrastructure to make sure that climate-proofed structures are built.

**Urban farming must be regularised** and sustainable land-use systems should be promoted in line with climate-smart agriculture. Land ownership for urban agriculture purposes should be clarified and supportive regulations developed, particularly as many of these spaces are often reserved for other purposes (e.g. recreation, schools, or churches).

In relation to the policy and strategies noted earlier in the brief, our research thus suggests ways of strengthening the response within, and better engaging those in informal workplaces and settlements.

Whilst the **climate change policy** focuses on a myriad of issues that need attention, a particular focus on informal residents and workers, and other disadvantaged groups such as people with disabilities calls for low-carbon housing designs, enhanced provision of clean energy for lighting, cooking, and heating, and all-weather roads. More broadly, Geographic Information Science (GIS) and Earth Observation data systems need to be strengthened for early warning of droughts, floods and disease outbreaks to ensure coordinated responses, including emergency services. Monitoring should be upstream, not only of diseases but also conditions that cause diseases. Our research found that there is still limited air quality and water monitoring. Home based water testing approaches could help to widen air and water testing services.

In the **National Development Strategy**, upgrading of informal settlements could take climate change into account by enhancing access to clean energy and water sources, foster green technology and ensure sanitation and hygiene. Proper siting of settlements must be considered so that development can avoid ecologically fragile areas such as wetlands, promote green spaces, and prioritise water provision and sanitation, including for informal workspaces.

More can be done in the **climate change response strategy to widen promising practice** in informal workers and residents. For example, those involved in plastic waste collection and recycling in Masvingo were found in our research to be participating in EMA-organised health clubs. These clubs support skills training to manage health and environment risks at work, to add value and improve linkages with markets. These networks address business risks and support households to hold dialogue with the local council on their issues, such as on the use of open spaces in the city for urban agriculture. This initiative could be spread to more local authority areas.

The **climate change learning strategy's priorities** can benefit the informal sector, such as by promoting renewable energy technologies: and providing informal workers with skills to install solar equipment and bio-digesters. Awareness-raising on renewable energy technologies can be an entry-point for improving informal livelihoods. Climate Smart Agriculture practices can be promoted in all farming communities; and resources mobilised for environment-related activities and enhanced information and formal and informal learning on climate change.

Finally, to be effective, such approaches need to be owned and understood by informal residents and workers, through information sharing and through their involvement in **participatory urban planning.**

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