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Article

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'We Fear For Our Lives': Understanding, Responding and Mitigating the Impact of Climate Change on the Malawian Prison System

Marie Claire Van Hout,[*] Ruth Kaima,[**] Apatsa Mangwana Mhango,[***] Vivian Kasunda,[****] Victor Mhango,[*****] David M. Ong,[******] and Stephanie Kewley[*******]

Abstract

Prisons are frequently excluded from hazard risk management, disaster mitigation planning particularly in the aftermath of climate disasters. People deprived of their liberty are wholly reliant on the State, and unable to protect themselves from climate related threats. This is especially the case in Africa where over one million people are incarcerated. We report from Malawi, a least developed country in sub-Saharan Africa, where the system is operating over 234 per cent capacity. With no climate change responsive prison policy, nor research on this topic despite evidence for disrupted agriculture and seasonal cyclone activity; we conducted a rapid situation assessment to evaluate the impact of climate change on the Malawi prison system operations. Interviews and small focus groups were conducted with professional stakeholders (n = 12), prison officers (n = 15), juvenile prisoners (n = 10), and former prisoners (n = 50). Reflexive thematic analysis revealed six themes: climate impacts and infrastructural challenges; extreme life-threatening events and (in)ability to evacuate; fluctuating temperatures, prison system congestion and ventilation; water crisis and environmental health; navigating crop failures, interrupted grain supply and food (in)security; and circulation of disease and amplified health vulnerability. Findings illustrate how climate change poses substantial challenges to congested prison operations in Malawi; infrastructure protection, sanitation and maintenance; (in)ability to safely evacuate; power, water and food shortages; and circulation of disease. Vulnerable prisoners include women, children and people with disabilities. The assessment evidence will inform the development of a climate responsive prison action plan for the Malawi Prison system and represent an exemplar for the Southern African region.

[*] Professor of International Health, Health inequalities, human rights law and health policy, Office of the Vice President for Research, Innovation and Impact, South East Technological University, Waterford, Ireland.
[**] Programs and Litigation Manager for the Centre for Human Rights Education Advice and Assistance, Blantyre, Malawi.
[***] Project and Paralegal Coordinator for the Centre for Human Rights Education Advice and Assistance, Blantyre, Malawi.
[****] Project Officer serving also as a legal researcher and reporter for the Centre for Human Rights Education Advice and Assistance Centre for Human Rights Education Advice Assistance, Blantyre, Malawi.
[*****] Founder and Executive Director the Centre for Human Rights Education Advice and Assistance, Blantyre, Malawi.
[******] Professor of International and Environmental Law, Faculty of Health, Liverpool John Moore's University, Liverpool, United Kingdom.
[*******] Professor of Forensic and Criminal Justice, Faculty of Health, Liverpool John Moore's University, Liverpool, United Kingdom. Corresponding Author: s.kewley@ljmu.ac.uk

Practitioner Points

- Prison professionals face occupational health risks due to the impact of climate change. These risks include the potential inability to evacuate the prison following life-threatening events and the increased likelihood of contracting communicable disease.
- Prison professionals require enhanced training and access to emergency equipment to safely respond to climate change disasters, which might include the evacuation of an entire prison population.

Keywords: Africa; climate change; extreme weather events; heat; Malawi; prison; water crisis; vulnerability

1. Introduction

Climate change is one of the world's greatest contemporary challenges and the consequences of climate change negatively impact a country's ability to achieve sustainable development goals, particularly goal 13 of the United Nations Sustainable Development agenda ('take urgent action to combat climate change and its impact') (United Nations 2024a). The United Nations Framework Convention on Climate Change is the primary international, intergovernmental forum for negotiating the global response to climate change including the safeguarding of food and water security and ensuring that a human rights based approach is employed (United Nations 2024a; United Nations Framework Convention on Climate Change 2022). Low and middle income countries are particularly vulnerable to the consequences and challenges presented by climate change and climate related disasters (for example population displacement, sea level rise, extreme weather events, increased spread of disease, crop failures, drought and so on) (Sharpe and Davison 2021). Also of importance is the fact that the determinants of climate vulnerability overlap with socio-economic and structural inequalities (for example race, poverty, social exclusion, stigma), and criminal justice involvement (Cowan et al. 2022; Golembeski et al. 2022). Many of the target groups of the Sustainable Development Agenda 2030 (United Nations 2024b) (people with low income, minority groups, Indigenous people) are in contact with the criminal justice system and live in prisons. This is especially the case in low- and middle-income countries. Despite no explicit reference in the Sustainable Development Agenda 2030 (United Nations 2024b), prisons are crucial to achieving the sustainable development goals (for example creating a peaceful and inclusive society by upholding the rule of law, improving health, improving sanitation and access to safe drinking water, reducing poverty and hunger, addressing the needs of female prisoners and reducing inequalities) (United Nations Office on Drugs and Crime 2024). The global prison population continues to increase with over 11.5 million people detained on any given day (Penal Reform International 2024).

The United Nations Climate Change Plan omits reference to people deprived of their liberty, despite their complete reliance on the State, and inability to protect themselves from climate related threats to health and life (Relief Web 2023; United Nations Framework Convention on Climate Change 2022). Prisons worldwide are frequently excluded from hazard risk management, disaster mitigation planning particularly in the aftermath of climate disasters (Penal Reform International 2024). Prisons systems and infrastructures can be compromised by negligence, inadequate disaster response planning, emergency preparedness and management (including infrastructure maintenance and improvements), and lack of appropriate guidance on prison evacuation (Glade et al. 2022; Jesuit Social Services 2021; Maner et al. 2022; Motanya and Valera 2016; Sullivan 2022). Strategic litigation challenges regarding prison standards and obligations in climate change affected areas are reported (Palacios and Vaughn 2023; Wu and Felder 2022), particularly where overlapping density of incarceration and climate disaster susceptibility is observed (Cowan et al. 2022).

Extreme temperatures and natural disasters can have catastrophic or hazardous impacts on infrastructure, for example damage, flooding, increased congestion, leading to unsafe and unsanitary conditions of detention, hazardous heat exposure, security breaches and increased morbidity and mortality of people living in prison (Cloud et al. 2023; Glade et al. 2022; Gribble and Pello 2022; Motanya and Valera 2016; Sullivan 2022; Tuholske et al. 2024). There is also racial disparity in the prison population with regard to exposure to extreme heat and floods (Glade et al. 2024). People in prison experience amplified vulnerability: often detained in poor and overcrowded conditions, and exposed to heat, cold, lack of ventilation, food and clean water insecurity, inequities in hazard exposure and complete reliance on the authorities when faced with extreme weather events (Cowan et al. 2022; Glade et al. 2022; Glade et al. 2024; Penal Reform International 2021, 2024; Relief Web 2023; Taylor 2024; United Nations Office on Drugs and Crime 2021, 2023). Food insecurity including in high income countries like the United States is documented (Taylor 2024).

2. Climate change impact on Africa

The United Nations have expressed their concern at the disproportionate impact of extreme weather and climate change on Africa, and potential for destabilization of countries/regions due to drought emergencies (for example in the Sahel and Horn of Africa), extreme heat and wildfires, crop failures, water shocks and food insecurity, flooding, increased poverty and backsliding of the rule of law (United Nations 2022b). Despite prisons housing over one million people, often in severely congested and harsh conditions and in dated colonial era facilities (Muntingh 2020; Van Hout 2020), and the obvious vulnerability to climate change and related disasters, they are not mentioned in the African Union Climate Change and Resilient Development Strategy and Action Plan 2022–2032 (United Nations 2022a). The confounding aspects of insufficient domestic resourcing of disaster and disease responses, infrastructural damage by extreme weather, and housing of malnourished and chronically ill prison populations in poor conditions threatens the lives and health of African prison populations (Van Hout et al. 2023a). For example, the Southern African Litigation Centre has observed that; 'prisoners are the invisible victims of the environmental crisis' due to their complete inability to escape and protect themselves from destructive weather events (for example in Madagascar following cyclone Freddy in 2023) (Southern Africa Litigation Centre 2022).

We report in this article on Malawi, a least developed and landlocked country in southern Africa (bordered by Mozambique, Zambia and Tanzania), which has experienced climate variability and climate change in the past several decades. This has contributed to devastating and increasingly more frequent climate shocks (including prolonged dry spells and droughts, erratic rainfall, and strong winds including cyclones, impacts on agriculture, water, energy, transport, health, education, forestry, wildlife and infrastructure) (World Bank Group 2022; World Bank 2024).

Malawi is a party to the United Nations Framework Convention on Climate Change, and the government is committed to taking urgent action to mitigate and adapt to the effects of climate change. In 2021, a National Adaptation Plan Framework was developed to align efforts to address climate change, with a goal of reducing the vulnerability of Malawians, ecosystems, and socio-economic development to the effects of climate change through adaptation and mitigation, technology transfer and capacity building. Prisons are omitted, despite prisoners in Malawi being classed as most vulnerable members of society and the prison system operating at 234 per cent capacity with 16,366 people deprived of their liberty (as of October 2022, most recent data published) (World Prison Brief 2023). The 2023 Malawi Prison Audit (Msiska and Stapleton, 2024) and previous Inspectorate reports indicate that conditions of detention remain harsh and have deteriorated in recent years (Malawi Inspectorate of Prisons 2019, 2021). A joint civil society submission to the United

Nations Committee on Economic, Social and Cultural Rights (CESCR) in 2023 raised grave concerns regarding severe overcrowding, fragile infrastructure, inadequate ventilation, hygiene and sanitation, water shortages, interrupted electricity, medicines stockouts, frequent disease outbreaks, and severe food insecurity (CHREAA 2023). Notwithstanding the impacts of climate related disasters, conditions of detention are conducive to chronic ill-health and disease (Nkambule et al. 2023; Van Hout et al. 2022; Van Hout et al. 2023b).

The Malawi prison system does not have a climate change responsive prison policy, nor has there been any research on this topic to date. In order to respond to this gap, we conducted a rapid situation assessment in mid-2024 to evaluate the situation. The evidence generated will inform the development of a climate responsive prison action plan for the Malawi prison system and will represent an exemplar for the Southern African region.

3. Material and methods

Rapid situation assessments are useful to produce 'real time' accurate, contextually rich evaluations of organizational aspects in development or humanitarian contexts, and to identify actionable information in short timeframes (Green et al. 2015). A multi-level rapid situation assessment approach was adopted which scrutinized three levels of determinants to establish the impact of climate change on the prison system from the perspectives of people living, working and managing Malawi prisons (individual prisoner level, the prison community, and the policy landscape). National Commission on Research in the Social Sciences and Humanities, and university ethical approval was granted [NCST/RTT/2/6; UREC Ref: 24/PHI/002 respectively].

A purposive sample of 15 prison officers (with remit in security, health, management) and 12 key professional stakeholders identified by a gatekeeping organization in Malawi (Centre for Human Rights Education Advice Assistance: CHREAA) as having knowledge around the Malawi prison system operations, were invited to participate. Professional stakeholders included representatives from the Malawi Human Rights Commission, Prison Inspectorate, local non-governmental organizations and international agencies. A convenience sample of ten male prisoners in a juvenile detention prison (Bvumbwe), and 50 recently released male and female prisoners from three large maximum-security prisons, each holding in excess of 2,000 prisoners (Zomba, Chichiri, Maula) were recruited with assistance from the gatekeeping organization (see Table 1).

Semi-structured interview and focus group guides were designed based on a rapid scoping of literature (Van Hout et al. 2023a) and team consultation, and centred on exploring the experience and perspectives of participants living and working in prisons in Malawi. Participants were not required to disclose or detail their own personal experiences, instead

Table 1. Participant Demographics

Category of participant	No. of participants	Data collection method
Former prisoners *	34 males 16 females	In-depth interview
Prisoners**	10 males	Two focus group discussions (5 participants in each)
Prison officers including senior officials	10 males 5 females	In-depth interview
Professional stakeholders	8 males 4 females	In-depth interview

* Zomba, Chichiri and Maula prisons.
** Bvumbwe juvenile detention centre housing adults aged 18 to 24 years of age.

they were invited to share observations of the impact of climate change on the Malawi prison system environment, infrastructure conditions, basic provisions (food, water) and operations. Questions focused on their observations of how climate change in the past five years has affected the Malawi prison system environment, infrastructure conditions, basic provisions (food, water) and operations, and what appropriate climate change support responses could support the Malawian prison system. This included reference to water and food insecurity, excessive heat or cold, floods, storms or cyclones.

Data collection was carried out by authors Kaima, Mhango and Kasunda. A private room in the gatekeeping organization was used to host interviews. All potential participants were provided with a verbal and written description of the study and had the opportunity to ask questions about the study prior to agreeing to partake. They were advised that they should not name individuals and that they did not have to answer any questions they did not want to and could withdraw or stop the interview at any time. Each semi-structured interview or small focus group (five individuals in each) lasted between 45 and 60 minutes and were audio-recorded with permission of the participants. Audio recordings (recorded on a password protected device) were transcribed, back translated from the local language into English where required, anonymized and stored on a secure server. Once checked for accuracy, audio recordings were destroyed.

The data was analysed using reflexive thematic analysis (Braun et al. 2019; Byrne 2022) in order to garner an in-depth understanding of the complexities and dynamics around the impact of climate change on and within the Malawi prison system and operations. This approach consists of several key steps to ensure scientific rigour by the team: reading and re-reading the transcription, individually and in pairs to share and identify early ideas; the development of coding schemes and the systematic coding of data by four members of the team (authors Van Hout, Kaima, Mhango, Kewley); an iterative process to organize codes into groups in developing themes and subthemes; team refinement and review of generated themes as a collective and with examination of coherence of patterns across themes; and finalization of themes and the naming of themes. As patterns and outliers were developed, periodic briefing sessions were held, and all members of the team assisted in interpretation of the narratives, reaching consensus around identified themes, and clarifying ambiguities in the data. A further layer of triangulation of sources in terms of perspectives across key informant professional stakeholder and former prisoner narratives was incorporated when raising the abstraction level.

4. Results

There was consensus that climate change poses substantial challenges to congested prison operations in Malawi; infrastructure protection, sanitation and maintenance; (in)ability to safely evacuate; power, water and food shortages; and circulation of disease. Priority population prisoners include women, children and people living with physical disabilities.

4.1 Climate impact and infrastructural challenges

The Malawi prison infrastructure is dated and narratives of participants with lived experience of incarceration and working within facilities revealed widespread concern regarding risk of further dilapidation due to extreme temperatures, flood and wind damage. Lack of government resourcing means the prison system is unable to adequately maintain structures, posing significant risks to the safety and well-being of the prison community (staff and detainees), with critical structures such as buildings, plumbing systems, and electrical wiring showing signs of wear and disrepair.

Many participants, particularly those living and working in prisons observed that such old and poorly maintained infrastructures are unable to withstand the daily consequences of temperature changes, excessive heat and rainfall. A professional stakeholder said:

> Most of the prisons' structure is too old and not strong enough … so they are not built to withstand the climate change … we've seen structures in prisons being affected, walls collapsing in some instances (professional stakeholder, male).

Earthquakes and cyclone seasons were deemed especially devastating with regard to infrastructural collapse in certain high risk areas. Former prisoners commented:

> the buildings were built a long time ago, so just think of a disaster like Cyclone Freddy, the impact can be very dangerous (former prisoner Chichiri prison, male).
> some of these buildings are too old, so in case of an emergency, I don't think they would stand and sometimes we fear for our lives (former prisoner Zomba prison, male).

Professional stakeholders also recognized the impact of ill resourced and maintained infrastructure and said:

> Karonga prison collapsed due to the earthquake and flooding, but we are not able to build a new one (professional stakeholder, male).

Participants with lived experience of incarceration described significant emotional distress due to concerns about their families and their well-being outside the prison walls during extreme weather events. This was especially evident among women in prison who are heavily reliant on family members for support and provisions.

> During these times we also get affected emotionally, because we never know what is happening outside prison to our relatives. We never know … maybe they have died, like during the time of cyclone Freddy (former prisoner Chichiri prison, female).

Comments were also made around isolation from family and inability to access family support and provisions (food, medicine, and so on):

> during cyclone Freddy our relatives were not allowed to come visit us; that made it even more difficult to stay in prison because it was difficult to find food (former prisoner Chichiri, male).

Flooding in cells during extreme weather events was described by many former prisoners as adding additional challenges to living in congested conditions, and fuelling unrest and internal tensions between people in prison.

> whenever it rains, water enters into the cells. What then happens, is that the prisoners who have space to sleep, bully those who have no spaces to sleep and force them to mop the cells, in order for them to earn a place to sleep (former prisoner Chichiri prison, male).

4.2 Extreme life-threatening events and (in)ability to evacuate

Many participants with lived experience of incarceration described intense fear around prison system inability to evacuate in the event of life-threatening temperatures, wildfires and extreme weather events. Both prison staff and people living in prison appeared acutely aware of the risks of catastrophe due to cell congestion, delayed responses to evacuation orders and lack of evacuation plans, lack of water (for example one tap serving over 300 prisoners), and fire extinguishers. There was also a general consensus from participants with lived experience of incarceration of not having trust in the competency of the prison staff to assist them during an emergency:

> most of them don't have expertise. Sometimes when we have emergencies, if you call them, they take over 2 hours to attend to you. In case of floods, we can all die because the officers don't have expertise in that field (former prisoner Maula prison, male).

Facilities were observed to lack adequate measures to withstand high temperatures and are notably deficient in fire extinguishing equipment. Participants with lived experience of incarceration described the lack of fire extinguishers and access to water, and the delayed response by staff due to housing of staff far away from cells in the prison compounds:

> On the issue of extreme heat, the cells don't have fans or small windows … assuming there is a fire outbreak at this prison, I don't think prisoners will survive the incident (former prisoner at Zomba prison, male).

> if there was a fire in prison, there is no form of help. I have been in prison for 20 years, I have never seen anything that can be used to extinguish fire in prison. Even if there was a fire, you could call the prison officers, but they would not come because they would think you are planning to escape (former prisoner Chichiri prison, male).

Prison staff also observed inherent risks in the event of fire, stemming from lack of training in how to respond and evacuate safely; lack of ability to respond to fire, and the severe overcrowding in cells impacting on ability to safely evacuate:

> There is no safety … there are no fire extinguishers. The prison guards need to be trained on how to evacuate inmates during fire emergencies. Many inmates are sleeping in cells … 700 or 600 in a small space, so if a fire starts, help in time would be challenging (prison staff, male).

> We do not even have basic equipment like fire extinguishers … but also, the prisoners are packed in cells … eeh it would be a disaster (prison staff, male).

4.3 Fluctuating temperatures, prison system congestion and ventilation

Fluctuating seasonal temperatures (cold and heat) coupled with cell congestion with small windows/vents close to the roof was described by participants with lived experience of detention as exacerbating intense discomfort and the circulation of disease, particularly airborne disease (such as tuberculosis, COVID-19). Former prisoners described their experience of overcrowded cramped cells, and said:

> when the temperature is high, the inmates feel uncomfortable in the cells and when the temperature is low they have problems with ventilation because all the windows are closed (detainee Bvumbwe prison, male).

> the cells are poorly ventilated, and it has a small window, as a result of this we eventually sweat in the cell when it's hot (former prisoner Zomba prison, male).

Some participants with lived experience described breathing difficulties due to poor air quality and severe cell congestion particularly when the weather was hot:

> We are affected because whenever we feel hot, we produce sweat and we'll be breathing on each other due to overcrowding. There won't be any breathing space (former prisoner Chichiri prison, male).

One professional stakeholder described prison system attempts to address this issue, by installing air cooling systems on the roofs of prison buildings:

> [they try] to make sure that the cells are well ventilated by installing air-cooling systems on rooftops. But the challenge remains that the roofs are still not considerably high enough … too many inmates crammed in a small cell are exposed to excessive heat. And it's a potential health hazard … it's a critical issue that needs our attention (professional stakeholder, female).

4.4 Water crisis and environmental health

Both prison staff and participants with lived experience of incarceration described how drought and consequent water shortages impact heavily on sufficient supply of adequate clean drinking water, and severely compromise levels of ablution, hygiene and sanitation. Many observed substantial challenges when water was not available and said:

> We can go a month without the Government paying for water … when we don't have water it is very challenging (prison staff, male).

> There is a very big problem with the prison water supply. There is no way to get water in cases of water shortages (former prisoner Chichiri prison, female).

Water shortages and interrupted supply of clean water was also observed to impact on electricity and ability to cook meals for the prison community. Several prisoners commented on frequent food and power related shortages, and said:

> When it is raining sometimes, we experience power outage. Since we cook using electricity we don't eat because food cannot be cooked. It is high time the authorities start exploring alternative means of preparing food (detainee Bvumbwe prison, male).

Chichiri and Bvumbwe prisons were described by prison staff as having implemented strategies to manage drought conditions within their facilities by installing water tanks and locating prison infrastructure close to dams:

> we have a pump that pumps water using electricity and when power goes out, we draw water from the borehole that's right outside of the prison. In addition to that, we are surrounded by a number of dams (prison staff, male).

4.5 Navigating crop failures, interrupted grain supply and food (in)security

The impact of climate change was described by all participants as most impactful on agriculture, sustainable livelihoods and food security in the country. Prisons were described by many as particularly vulnerable to climate-induced disruptions in agricultural output, given the heavy reliance on maize as a staple food provision to the prison community. A professional stakeholder said:

> There has been not enough food harvested both in the prison farms as well as in the regular fields in the community. This has severely affected the supply chain of the prisons. And there have been many reports that inmates have not received their food because the supply chain in the prison system has totally collapsed (professional stakeholder, male).

Significant challenges in navigating crop failures, interrupted grain supply, and ensuring food security were reported by prison officials and participants with lived experience of

incarceration. Persistent issues with food shortages were described as of longstanding concern by prison management, with all participants describing how prisoners often endure prolonged periods without adequate nutrition:

> Many prisons in Malawi rely on agriculture but with irregular rainfall patterns, farming becomes challenging … where prisoners farm, irregular rains disrupt agricultural activities. Last year for example, despite successful planting, heavy flood rains destroyed a significant amount of maize (former prisoner Zomba prison, male).

> the prison system cannot deal with food insecurity, interrupted grain supply or crop failures. If we do not farm for ourselves, then we will not have food to eat (former prisoner Chichiri prison, male).

Malnutrition was described as common by participants with lived experience of incarceration:

> The prisoners are not in good health because of lack of food. Some have been growing thin and others have been getting swollen. We have been eating once a day and the portion is very small (detainee Bvumbwe prison, male).

Failure to resource and explore alternative ways of generating energy was also of great concern to professional stakeholders and prison staff:

> We have plans for using alternative sources of energy but we lack support for that kind of programme (professional stakeholder, male)'

> there is need for extensive investment into sustainable agriculture so that the prisons do not necessarily depend on rain fed agriculture. They can still produce their food with or without a good rain for a particular year. They should be able to harvest not just once, but maybe multiple times in a year … not just maize, but also other food crops which are high yielding (professional stakeholder, male).

4.6 Circulation of disease and amplified health vulnerability

Circulation of a variety of communicable diseases was described, many of which directly related to poor health of the prison population, environmental determinants of health and congested conditions of detention (for example HIV, tuberculosis TB, cholera, skin rashes, scabies, conjunctivitis and others), and were exacerbated by malnutrition, inadequate ventilation, sanitation, hygiene and ablution, and under resourced health preventive measures. Many participants with lived experience described regular outbreaks of skin, eye and other infections:

> there are indeed diseases that are spread from one person to the next. For example, we have chicken pox here transmitted from one person to another in different cells. Sometimes we have face rashes and pimples that we spread to each other … scabies has also affected us a lot (detainee Bvumbwe prison, male).

> The prison cannot manage heat and with heat comes skin rashes, because people sleep in 'shamba'[1] and there are many inmates in the cells (former prisoner Maula prison, male).

1 A sleeping arrangement known as 'shamba' in Malawi prisons, whereby detainees sleep mostly in a sitting position in the middle of the cell due to overcrowding (Nkambule et al. 2023).

Prison officers reported concern around disease transmission within prison cells, and potential occupation health risks:

> We have been facing challenges like the cholera outbreak. This affects both the prison warders and prisoners. Other warders have been diagnosed with TB, COVID-19 and eye diseases because they get in contact with infected prisoners (prison officer, male.)

Health vulnerability was particularly amplified in certain groups of prisoners, including women, children, individuals with chronic illnesses, and people living with physical disabilities. Both prison staff and those with lived experience of incarceration were aware of these vulnerabilities and inability to protect oneself from disease and other health harms, and from potential threats to life during extreme weather events:

> especially those that are paralyzed because they are not able to do some stuff for themselves properly. The prison staff do not take care of them properly ... same with children, they don't live a comfortable life (former prisoner Chichiri prison, female).

> Most prisons do not have structures which can support those who cannot walk on their own because the steps are too high. This poses a danger to the children (prison staff, female).

> especially the disabled, they can't compete for resources so they suffer the most (prison staff, male).

5. Discussion

We present here the first rapid situation assessment to date on the impact of climate change and related disasters on prisons in Africa. Hazards include heatwaves, droughts, flooding and cyclones, but also relate to a facility's particular vulnerabilities in terms of its size, prison population, location, construction type, population and occupancy. Findings underscore how climate change in recent years poses substantial challenges to congested prison operation: infrastructure resilience; ability to safely evacuate all detainees including the young, ill and disabled; system capacity to ensure sufficient electricity, food security and supply of clean drinking water, and sufficient disease control. Amplified vulnerabilities of people living in prison are evident in Malawi, including how the system struggles to deal with extreme weather events and natural hazards, and related disruptions, such as power outages, and food and water shortages. Malnutrition and threat to life of people living in these prisons are of grave concern, given their whole reliance on the State for protection. Also of grave concern is the inability of the Malawi prison community to evacuate efficiently in the event of extreme (often life threatening) weather.

The prison service is mandated to protect people living in prison from harm, including foreseeable risks such as those posed by climate change, climate shocks and natural disasters (Penal Reform International 2021; Sullivan 2022). As advocated for in the developed world (Levenson 2022), increased resourcing, awareness, investment, and penal policy changes are warranted to protect incarcerated individuals from the escalating, often disastrous, impacts of climate change. Africa, given the disproportionate impact of climate change on the continent, is no different (United Nations 2022a, 2022b). The evidence generated highlights the critical importance of including prisons in Malawi's domestic climate adaptation, shock and disaster mitigation plans and risk reduction measures. The rapid situation assessment underscores this and emphasizes the necessity for the Malawi National Adaptation Plan to either incorporate, include or otherwise address climate change adaptation issues raised about the Malawi prison system. High-risk prisons, particularly those in known cyclone paths or with fragile infrastructure, should be identified, decongested

and maintained. Early warning systems, contingency plans, staff training, and sustainable development approaches to improve essential services (for example continuous power, food and water supply) are warranted in any subsequent climate response plan for the Malawi prison system. Other crucial aspects include actions to ensure safety and security is not compromised, using renewable energies for water supply, cooling and heating mechanisms, expanding prison farms and diversifying crops to support all year-round food (Penal Reform International 2021).

Finally, it is encouraging to see the evidence base on Malawi prisons growing (Nkambule et al. 2023; Van Hout et al. 2022; Van Hout et al. 2023b) and cited in United Nations treaty body (for example CESRC) submissions (CHREAA 2023). This is article details the first known study on climate change and prison operations from Africa. Further research to better understand the intersection between climate change, disease outbreaks, vulnerability and incarceration in Africa is warranted. Despite the bulk of research on the impact and navigation of climate change by prisons originating from the United States (Golembeski et al. 2022; Gladeet al. 2022; Motanya and Valera 2016), very few studies consult with persons living in prison themselves (International Committee of the Red Cross 2022; Le Dé and Gaillard 2017). Perhaps more importantly, climate change impacts on prison populations are being increasingly recognized by international human rights institutions such as the UN Human Rights Council through the latest report of the Special Rapporteur on Torture (A/HRC/55/52 2024), and also by the Group of Friends of the Mandela Rules (UN Standard Minimum Rules for the Treatment of Prisoners) (United Nations Office on Drugs and Crime 2023). Indeed, it is arguably necessary to render these Rules more climate resilient, especially those related to prison accommodation (Rules 12–18). Given the substantial vulnerability of women and children in prison, this would equally apply to the United Nations Rules for the Treatment of Women Prisoners and Non-Custodial Measures for Women Offenders (the Bangkok Rules) (UN General Assembly 2010).

5.1 Limitations

The situation assessment was conducted in a rapid timeframe of four weeks and does not claim generalizability. Limitations centre on the limited numbers of key professional stakeholders working in this field in Malawi, thus limiting the general pool to select from. Access to prisons and the final sample of participants was however enhanced by existing working relationships with the gatekeeper organization prior to recruitment.

6. Conclusion

On 18 July 2023, in line with the theme of Nelson Mandela Day 2023 ('Climate, Food and Solidarity'), more than 40 Member States came together for a special meeting of the Group of Friends of the Nelson Mandela Rules to discuss how to mitigate the impact of climate change and related disruptions on prisons and detainee management (United Nations Office on Drugs and Crime 2023). This rapid situation assessment conducted in mid-2024 is the first of its kind (to our knowledge) in Africa, and highlights the imperatives that future climate change responsive prison policies should be resourced and incorporate decongestion measures, infrastructure resilience measures and sustainable agriculture in prison farms, prison community capacity building, and vulnerability inclusive and agreed human rights based development frameworks, to mitigate the impact of climate change on prison system operations.

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Conflict of interest

There are no known competing financial interests or personal relationships that could have appeared to influence the work reported in this paper.

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Data statement

Data is not available for access as it includes sensitive and confidential information.

Author contributions

MCVH is the grant holder and was responsible for conceptualization, design, data analysis, writing of the original draft, review and editing prior to submission.

RK was responsible for project coordination, data collection, data analysis, review and editing prior to submission.

AM was responsible for project coordination, data collection, data analysis, review and editing prior to submission.

VK was responsible for project coordination, data collection, data analysis, review and editing prior to submission.

VM was responsible for project coordination, data collection, data analysis, review and editing prior to submission.

DO was responsible for conceptualization, design, review and editing prior to submission.

SK was responsible for conceptualization, design, data analysis, review and editing prior to submission.

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