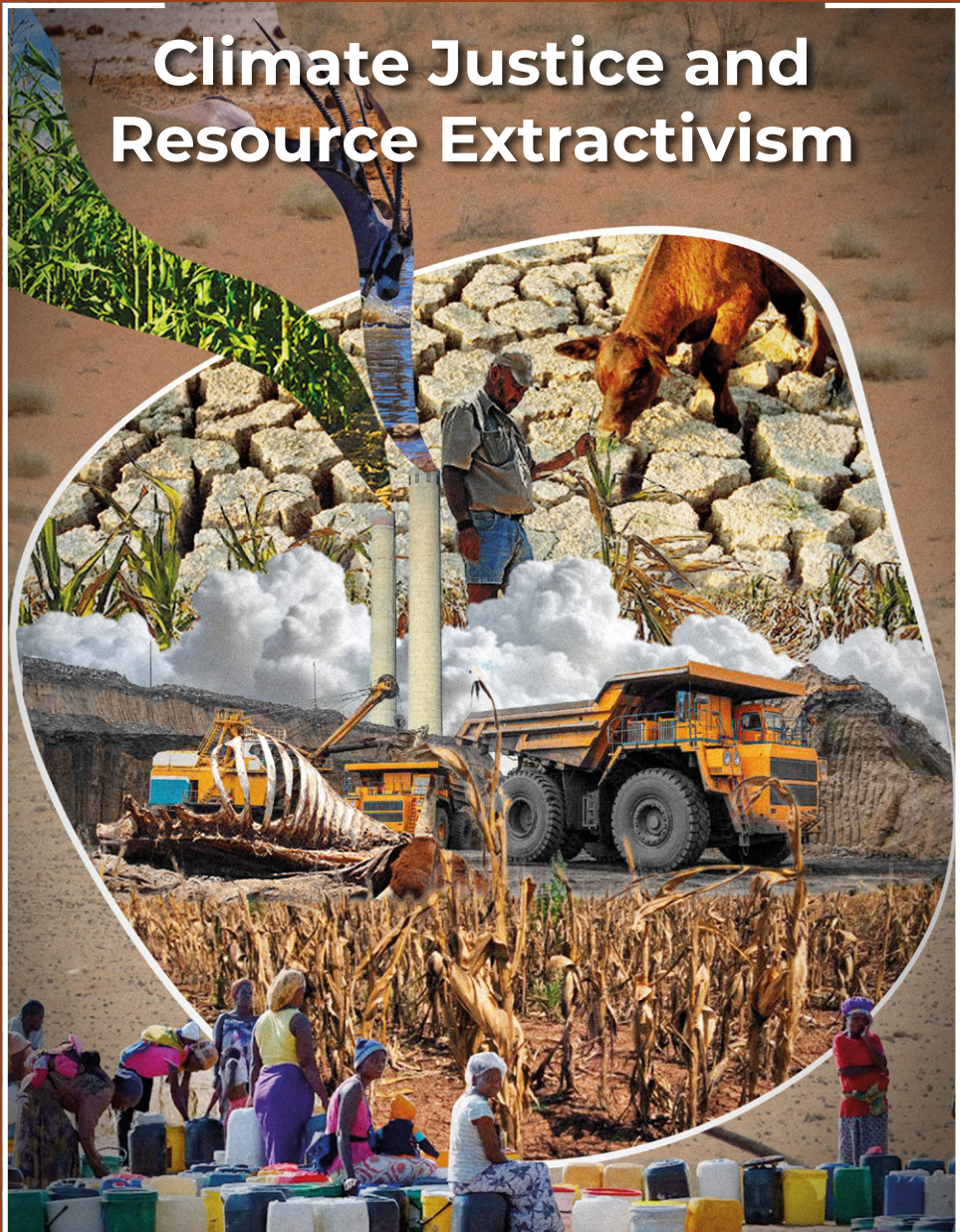


# Climate Justice and Resource Extractivism



# Exploring Climate Justice through Environmental Adaptation: A Case Study of Namibia

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## Introduction

This article explores the concept of climate justice within the framework of Namibia's environmental adaptation. It focuses on Namibia's susceptibility to the climate crisis as a developing, semi-arid country. While environmental adaptation strategies are crucial for mitigating these challenges and safeguarding the livelihoods of affected communities, there are concerns regarding the equitable distribution of resources. The article identifies key challenges and gaps in achieving climate justice. It also assesses the effectiveness of ongoing adaptation efforts and evaluates how they address social justice and equity concerns, and the needs and priorities of Namibia's poor. Specifically, the study examines current adaptation initiatives as contextualised in the socioeconomic realities and vulnerabilities of poor communities in Namibia. The article further examines the adequacy of existing financing mechanisms in support of Namibia's environmental adaptation initiatives. Finally, the

study recommends mechanisms to be applied to attain climate justice and environmental adaptation.

## The relationship between climate justice and adaptation measures

Figures 1, 2 and 3 below<sup>1</sup> illustrate Namibia's vegetation cover, and temperature and rainfall patterns, which are all directly affected by climate change.

Climate justice requires fairness in addressing both the causes and impacts of climate change (Mwenda & Bond, 2020). Countries in the Global North, which have historically contributed the most to climate change, have a responsibility to support the Global South in adopting sustainable, climate-resilient practices (Arcaya & Gribkoff, n.d.). In Namibia, as in many developing countries, the poorest and most vulnerable communities who are the least responsible for climate change suffer the most from its impacts (Newsham & Thomas, 2009).

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<sup>1</sup> Source (Figure 1, Figure 2 & Figure 3): Author

Figure 1 Namibian vegetation map

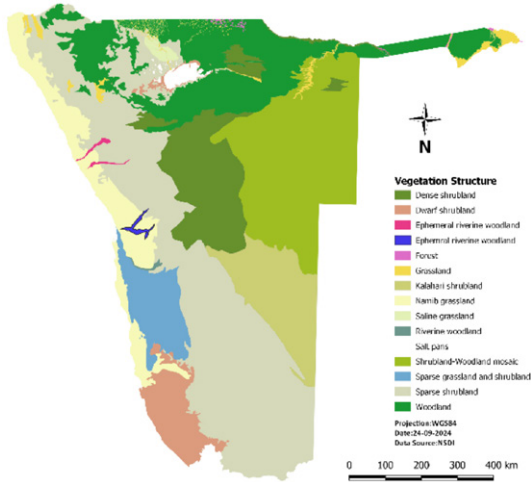


Figure 2 Namibian temperature map

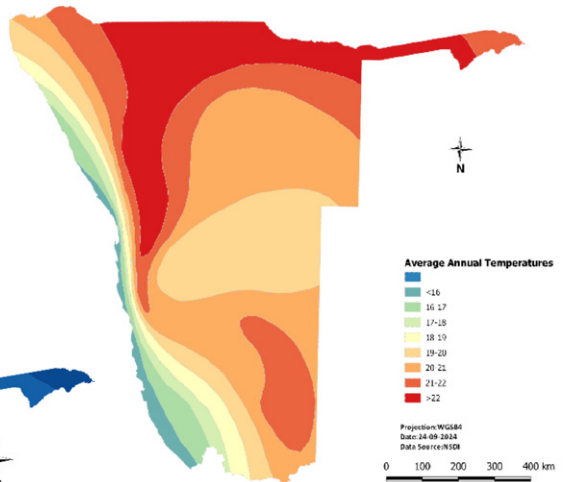
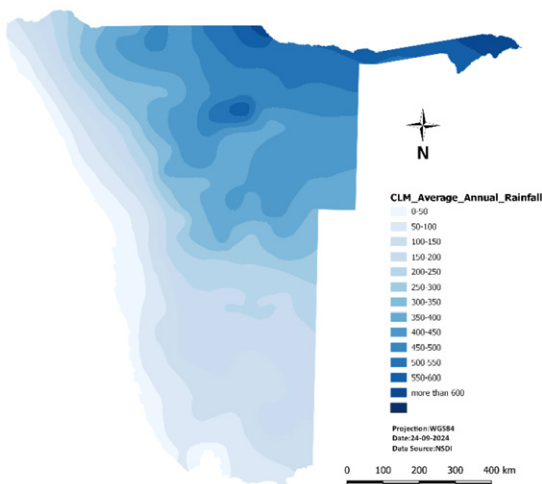


Figure 3 Namibian rainfall map



## **Adaptation**

Climate adaptation is defined as any adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm, or exploits or harnesses beneficial opportunities (IPCC, 2007). The fundamental question is how the local community in Namibia can adapt to climate change, and how they will be able to survive the changing trend in the world in order to maintain their living standards and, crucially, to continue producing food.

The best available science informs Africa on her adaptation priorities (Ruppel et al., 2022). Consequently, the African Union member states have adopted the Great Green Wall in Africa initiative to adapt to climate variability and change, particularly in Africa's arid and semi-arid environments (Trautman et al., 2024; Ford et al., 2015).

## **Challenges to environmental adaptation in Namibia**

Namibia's socioeconomic development depends on natural resources that are severely impacted by climate change (Hauptfleisch et al., 2024). The Ministry of Environment, Forestry and Tourism (MEFT, 2023) argues that constituencies in the southern part of the country are more resilient than those in the northern regions, where the poorer segments of the

population reside, adding additional layers to unequal resource distribution. In addition to financial constraints, knowledge constraints and governance issues, these act as significant barriers to the implementation of Namibia's adaptation measures (Shackleton et al., 2015; Wisner, et al., 2015). It is anticipated that hydrocarbon oil extraction in and along water sources such as rivers and oceans will lead to water contamination (Bashir et al., 2020). This constitutes a threat to the water quality and safety of the Kavango River/Okavango Delta, which is the main source of water for irrigation, cleaning and cooking for local communities (Ruppel et al., 2022). Due to droughts, different communities continue to suffer shortages of drinking water, especially in Ohangwena, Oshikoto and Omusati regions (Wanke et al., 2014).

## **Relationship between climate change adaptation and mitigation**

Mitigation refers to an anthropogenic intervention to reduce the sources or enhance the sinks of greenhouse gases (IPCC, 2007). Mitigation is rooted in just transition as a way of moving toward a low-carbon emissions dispensation, as outlined in the Harambee Prosperity Plan II and Namibia's long-term Vision 2030 (Republic of Namibia, 2016). Examples of this are sustainable energy and transport initiatives.

Namibia has embarked on mitigation measures such as establishing the Omburu and Kahn photovoltaic schemes, the Otjikoto Biomass Power Station, the Baynes Hydropower Project (MEFT, 2023; Kandjoze, 2014; Kruger, 2022) and green hydrogen projects in the southern part of the country (von Oertzen, 2021). Concerns have been raised about some of Namibia's mitigation efforts and adaptation measures, as some of these projects could cause further environmental damage (Davies et al., 2019). One example is the green hydrogen pilot projects that use underground water sources. This poses a serious threat to the area's biodiversity that depends on these water sources (von Oertzen, 2021). Similarly, riparian regions, especially, in farming communities in Erongo Region, are affected by reduced water supply (Mapani et al., 2023). Additionally, the project's envisioned scope may occupy a significant portion of the protected Namib Naukluft Park, potentially jeopardising the survival of its healthy ecosystem (Tilman & Kantel, 2024).

Some mitigation developments throughout the country undermine ecosystem services. As much as these projects may bring development, they also threaten livelihoods based on these ecosystems (Mungai et al., 2021). In addition, the ecosystem services provide for climate regulation,

healthy food and water for both people and livestock, as well as their crops (Millennium Ecosystem Assessment, 2005). This also speaks to culture and the way of life: for instance, within the Topnaar community, the !nara plant is significant for their survival and identity, and if it were to be eliminated from the desert, the negative consequences for them would be significant (Magnúsdóttir, 2013).

## **Namibia's Adaptation Agenda**

The National Climate Change Strategy & Action Plan (2013–2020) highlights that “development should be based on notions of human rights and equity” (Principle 5) and should “[address] the needs of the most vulnerable social groups and sectors” (Principle 6) (Ministry of Environment & Tourism, 2013). The country agenda identified food security and sustainability of resources, with a focus on agriculture, natural resources and biodiversity as being fundamental to livelihoods (Ministry of Environment & Tourism, 2013). The agenda refers to a need for sustainable water resources management, given the aridity of the country and poor water quality. It notes the need to improve policy response, monitoring and the conservation of water resources (Republic of Namibia, 2015). Another strategic area is human health: the health sector is to be strengthened to cope with the

prevention and treatment of those diseases expected to increase due to climate change (MEFT, 2023). To deal with extreme weather conditions, part of the adaptation agenda is to roll out infrastructure that stimulates economic growth and strengthens resilience to adverse climate events (Ministry of Environment & Tourism (MEFT), 2013). Such infrastructure includes decent housing; roads; water facilities; electricity transmission; communications systems; and sewage and drainage systems (Ministry of Environment Forestry and Tourism, 2023). The adaptation agenda considers equity, fairness and ambition, in line with Namibia's nationally determined contribution (NDC) to climate change (Mills-Novoa & Liverman, 2019).

Namibia's NDCs reporting emphasises that climate change has gender-differentiated impacts and adversely affects women, girls, and minority groups such as the disabled. Women's vulnerabilities to the climate crisis are linked to socially and culturally gendered roles and responsibilities (MEFT, 2023). Many women have limited voice and participation in decision making and lack access to resources, including technological resources, that could help to improve their adaptation capacity (Gicheru et al., 2024). Angula et al. (2021) found that women are not equal partners in resource management and are mainly

engaged in activities that do not yield financial gains. Climate risks increase women's vulnerability to job losses as a result of limited employment choices at the local level, and their restricted mobility compared to men (Angula et al., 2021). Post-independence, the introduction of gender equality laws in the Republic of Namibia and the Sustainable Development Goals, particularly SDG 5 for gender equality, provided a platform for women to be involved in decision-making and access career choices and opportunities (Olsson, 2001, p. 14; Ananias et al., 2023). These measures are relevant to gender-responsive measures in Namibia as they enable women to adapt to the adverse impacts of climate change.

## **Adaptation funding in Namibia**

Financing is a critical aspect of the adaptation strategy, but Namibia has struggled to secure the necessary funds to support its climate adaptation initiatives. The MEFT estimates the requirement of about United States Dollars (USD) 4 billion to implement Namibia's adaptation ambitions. Current spending falls short of this goal (Davies et al., 2019; Garrard et al., 2021; Wilhelm, 2012).

Namibia does not have adequate mechanisms to access climate finance (Mungai et al., 2021). Green Climate



Finance, a global financier, has pledged to provide support for low carbon emissions and climate resilient projects to address adaptation (Redman et al., 2012). To date, Namibia is accredited with the Environment Investment Fund as a direct access entity for micro-scale grants (Green Climate Fund, 2023). This hinders Namibia's access to more climate finance (Seo, 2019; Fonta et al., 2018). Institutional arrangements and human resource capacity limitations hinder African countries from accessing sufficient adaptation finance (Tirpak et al., 2014).

The MEFT has nominated the Namibia Nature Foundation, Bank Windhoek, the Development Bank of Namibia and the Agricultural Bank of Namibia as direct access entities for climate finance, in addition to the Environmental Investment Fund of Namibia. This would imply that communities are able to access finance in the form of grants and non-concessional loans for micro- and mega-projects focusing on adaptive low carbon emissions and for building climate resilience (Tirpak et al., 2014

### **Legal and policy frameworks for climate change adaptation**

The protection of the environment and promotion of climate change adaptation in Namibia is supported by various laws, strategies and plans,

in line with Namibia's NDCs, such as the Second National Biodiversity Strategy and Action Plan; the Revised National Strategy on Wildlife and Law Enforcement (2021–2025); the National Climate Change Strategy and Action Plan (2013–2020); Namibia's Aquaculture Strategic Plan; and the Forestry Strategic Plan (Ruppel et al., 2022). These collectively evince a focus on food security, sustainable agriculture, human health and wellbeing, and infrastructure (Millennium Ecosystem Assessment, 2005; Fonta et al., 2018).

Namibia's Environmental Investment Fund Act (13 of 2001) commits the government to supporting and making financial resources available for communities to build climate resilience capabilities.

The Environmental Management Act (7 of 2007) provides for the effective management of natural resources by communities (Ruppel et al., 2022). In line with this act, the MEFT commissioned environmental officers whose responsibility it is to ensure that communities are in compliance with the law (Smit, 2024).

### **Local level actions towards adaptation**

Some adaptation measures target land utilisation to address degradation. Special public participation events accommodate the participation of

vulnerable social groups such as youth, women, and other marginalised groups. Through these programmes, women are given title deeds and rights to participate equally in decision-making (Angula et al., 2021). There is also an annual youth-led Local Conference of Youth. In addition, youth participation in the Conference of Parties (COP) introduced them to the global systems, processes and institutions for adaptation and sustainable development (Marquardt et al., 2024).

In parallel with these developments, climate justice further requires that policymakers consider those that are least responsible for climate change, yet bear the brunt of its impacts (Ritchie, 2024). For instance, in Omusati Region, deforestation, land degradation, and water scarcity severely affect local livelihoods (Nikodemus & Hajek, 2022). In response, local leaders in bodies such as the Ongandjera Traditional Authority have introduced regulations to curb deforestation and promote sustainable resource management (Odendaal, 2011). These measures align with the principles of climate justice and seek to protect the environment and ensure that the most vulnerable communities are not disproportionately affected by the impacts of climate change. In 2017, the Ongandjera Traditional Authority put an end to tree-felling without permits in Onamatanga, Okahao, Okotjatu

and Itapa (Doderer et al., 2022). Students at the University of Namibia's Ogongo Campus have also taken part in awareness raising through a climate change awareness-raising outreach project. They engage with traditional leaders and school learners on climate-friendly farming methods and dry season food production (Kandongo et al., 2013)

The Ministry of Agriculture, Water and Land Reform has promoted the use of climate-resilient crops, such as omahangu (pearl millet) varieties that can thrive in dry condition (Shikangalah, 2020). This includes the use of Kangara and Okashana 2 as drought tolerant seeds that grow rapidly even with diminished rainfall (Shindume, 2017). Similarly, Namibian local businesses have recognised an opportunity to invest in corrugated iron sheeting for building material as individuals are now moving away from timber products due to restrictions imposed by the Environmental Management Act (7 of 2007) (Remmert & Ndhlovu, 2018; Itewa, 2002; Ruppel et al., 2022).

## Conclusions

This article has scrutinised the concept of climate justice within the framework of environmental adaptation by placing emphasis on Namibia's vulnerability as a developing, semi-arid nation. This vulnerability



underscores the critical importance of adaptation strategies in mitigating climate challenges and protecting the livelihoods of affected communities.

It forcefully argues for the equitable distribution of resources, especially among women and vulnerable groups. There remain financial constraints, knowledge gaps and governance issues that impede the realisation of Namibia's adaptation goals. Locally-led actions in land use and participation initiatives are also vital for addressing degradation and promoting sustainable management. Efforts to involve vulnerable social groups such as women, youths and the disabled in decision-making processes are essential for achieving climate justice and adapting to climate change.

Legal and policy frameworks such as the Environmental Management Act (7 of 2007) and the Environmental Investment Fund Act (13 of 2001) play a crucial role in supporting climate resilience.

There is a need to balance mitigation and adaptation. While mitigation projects such as renewable energy initiatives are necessary for reducing carbon emissions, they must be carefully managed to avoid further environmental damage and ensure that they do not undermine adaptation measures.

Information platforms could serve as mechanisms to assess information, identify the challenges and opportunities associated with addressing environmental adaptation efforts, and gain access to climate finance. This should go hand-in-hand with awareness creation. There is a pressing need to make it easier for climate-related information to be translated into laymen's terms to facilitate timely action.

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