



“Intersectionality of Gender, Climate Change and Engineering” Conference Theme

Exploring the Climate Change, Water and Gender nexus; A case of Zambia

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Presentation Outline

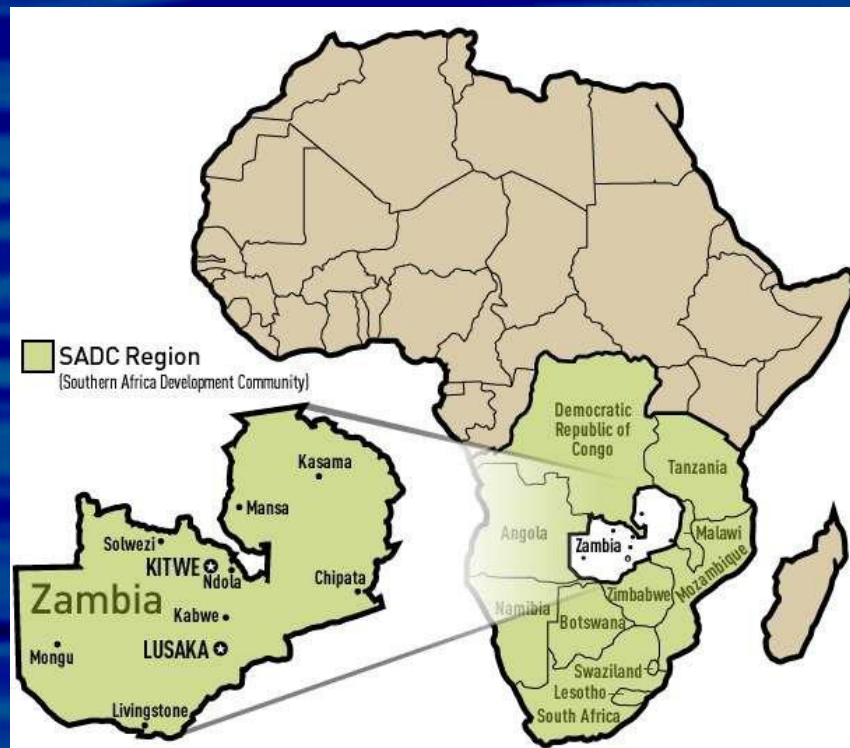
- **Background on Zambia**
- **Zambia's Surface Water**
- **Climate Vulnerability of Selected Sectors**
- **Impact of Climate Change on Gender by Sector**
- **Call to Action**

Background on Zambia

Climate facts

- Between 1970 to date, Zambia has experienced a number of climatic hazards
- These include droughts, seasonal floods and flush floods, extreme temps and dry spells
- The frequency, intensity and magnitude have increased
- Adversely impacted has been food and water security, water quality, energy, mining and sustainable livelihoods of rural areas resulting in urbanization.

Africa showing Zambia



Impact on water has been felt

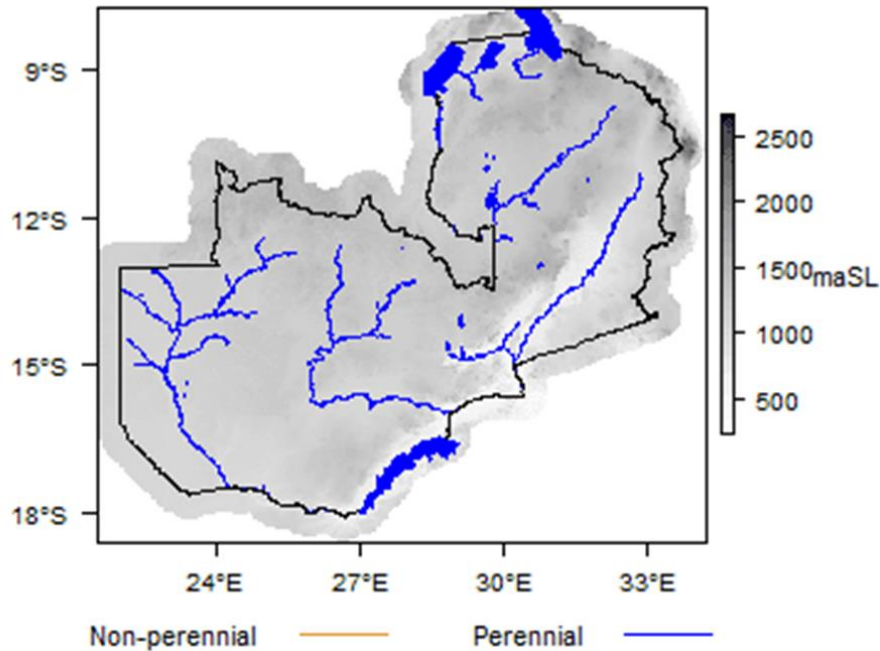
Water? The World Economic Forum View

The significance of our quest



“Water lies at the heart of everything that is important for human life: food, sanitation, energy, production of goods, transport and the biosphere as such; water ensures not only mere survival of humans, but also social well-being and economic growth.”

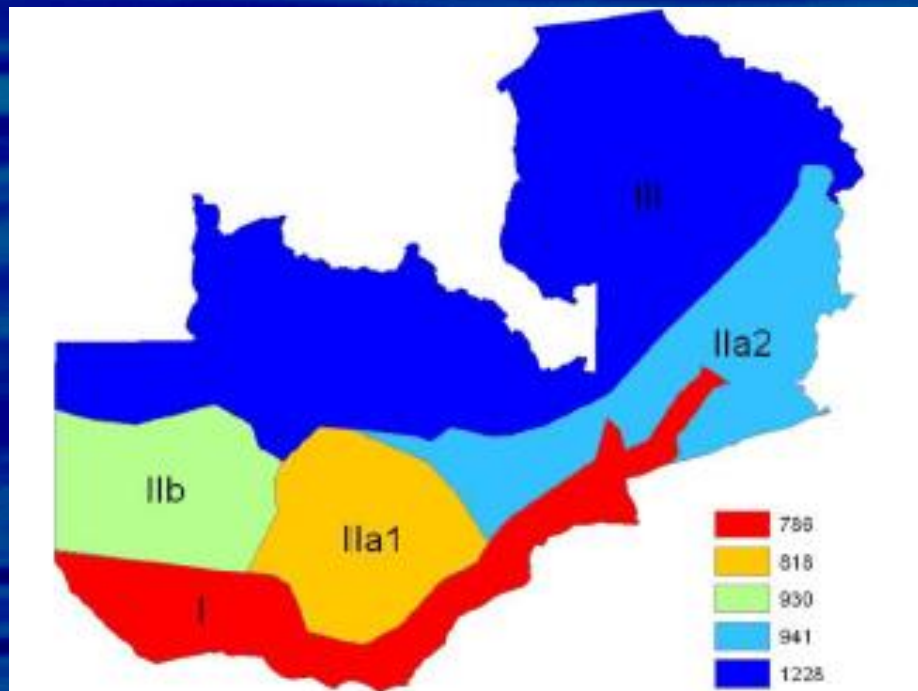
Zambia's Surface Water



- Extensive surface water resources, with a number of large perennial rivers.
- Dammed surface water reservoirs are used primarily for electricity (95%).
- Industry relies on water for socio-economic activities.
- Agriculture is largely rainfed.
- Surface water is the major source for domestic water supply

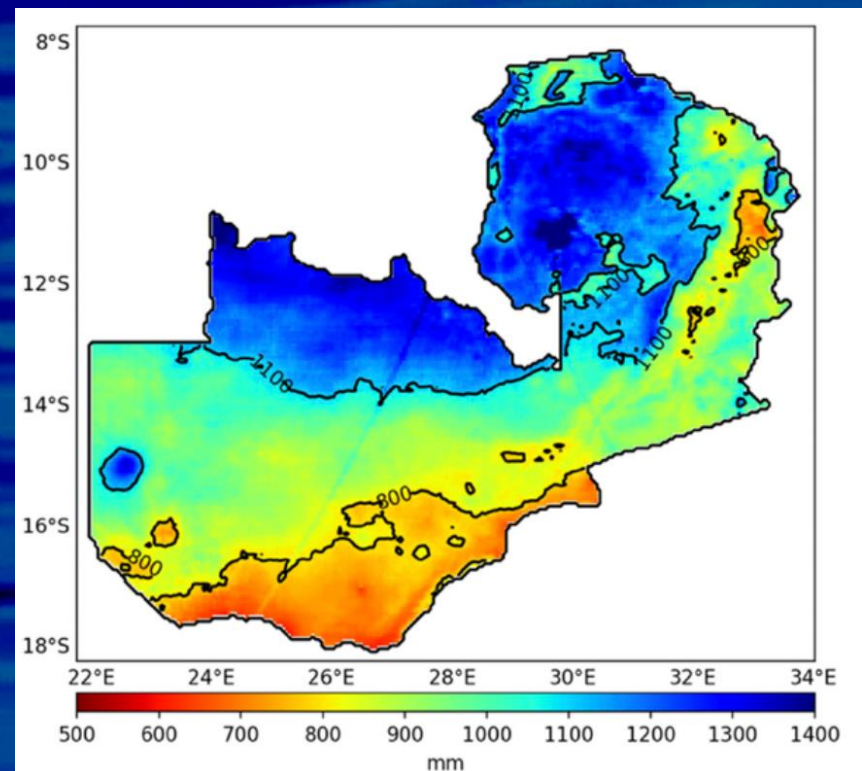
Mean Annual Rainfall (mm)

(a) 1976-2007



Source: Zambia Meteorology Department

(b) 2000-2016



Region 1: Dry; less than 800mm annually
Region 2: Intermediate 800-1000mm annually
Region 3: Wet; greater than 1000mm annually

Source: Waldman et. al., 2018

CLIMATE VULNERABILITY OF SELECTED SECTORS

Reduced available water, what is the impact?

(a) Agriculture

- **According to the 7NDP 2017-2021, agriculture;**
 - **Contributes about 8.7% to GDP**
 - **Largest contributor to employment**
 - **Critical for achieving diversification, economic growth and poverty eradication**
- **But agriculture annual GDP growth rate has been reduced by at least 1% and by over 2% during the worst rainfall scenario.**

Agriculture

- **Region I (Dry) and II (Intermediate) are extremely vulnerable; planning for climate change is a necessity**
- **Previously maize belts and had high number of animals**
- **Due to shortening of the growing session (droughts)**
 - **certain crop varieties e.g maize sometimes fail to mature undermining food security.**
 - **results in reduced plant growth thus reduced pastures leading to poor livestock production thereby reducing animal population.**

Source: Assessment of Impacts and Adaptation to Climate Change Studies, 2003-24

Agriculture

- **Fisheries: Drought results in reduced nutrient levels in rivers and lakes;**
 - **negatively impacting fish breeding activity and**
 - **depletion of species in the long term.**
- **Impacts of floods**
 - **destroy crops and infrastructure (dams)**
 - **causes siltation and sedimentation of rivers**
 - **causes soil erosion**
 - **reduces cultivable land**

(b) Electricity Generation

2016 Water Crisis



Kariba Dam Water Levels (Southern Region)

Good levels (2019)



Low levels (2016)



Source: Zambezi River Authority

Electricity Generation

- **Hydropower generated from the Kariba dam contributed to Zambia's political stability and helped turn its economy into one of the fastest growing on the continent.**
- **Severe drought magnified by climate change reversed this in 2016 as water levels reached record low.**
- **Blackouts crippled the nation's businesses in a quick, mortifying letdown.**
- **Impacts: Revenues reduced, companies downsized and govt struggled to pay its own civil servants, reached out to the International Monetary Fund for help.**

Electricity - Deforestation

- **80% of households nationwide use biomass (charcoal) for cooking (Ministry of Energy Zambia, 2021).**
- **Vegetation loss diminishes the carbon sink exacerbating climate change.**

(c) Mining

- **One of the major consumer of electricity (above 50%)**
- **Zambia has a long history of mining since 1920 with a large known resource base of copper, emeralds, and other deposits.**
- **It is a significant source of government revenue accounted for 78.4% of exports in 2019.**
- **It accounts directly for 9.9% of the GDP and indirectly, as much as half of the GDP.**
- **The sector directly employs about 73,203 people representing 2.4% of total employed persons.**
- **It directly and indirectly is one of the major drivers of urbanization.**
- **Power cuts led to loss of jobs for a significant proportion of employees in 2016.**

Source: Zambia Extractive Industries Transparency Initiative, 2019

(d) Human Health

- **Despite abundant water resources in the country, communities in the dry region experience severe water shortage during summer.**
- **Health is sensitive to climate and synoptic weather patterns especially in the tropics**
- **Humans are vulnerable to climate-sensitive diseases such as dysentery, cholera, respiratory infection and malnutrition.**
- **The dry and intermediate regions are again most vulnerable**

Climate Change and Gender



How are women impacted?

Impact of Climate Change on Gender by Sector

- Agriculture: Women (agrarian livelihood) are affected and affect water resources thus vulnerable.
- Poor nutrition results in poor health (caregivers)
- Electricity: Women collect and transport firewood; reducing available time to do school work and engage in other productive work.
- Unclean energy source leads to poor health
- Water: women are the majority of water users
- Women and girls draw water; reduced time in school and productive activities
- Increased incidence of diseases; women are care givers.
- Mining; Job losses means loss of household income; women take on additional role

Call to Action

“Fresh water is being massively overused at nature’s expense, but it seems only a global crisis will make us realise the importance of the issue.”

Paul Bulcke, CEO of Nestlé



“Clean and reliable water can no longer be taken for granted, even for those who can afford it... Already 2.8 billion people - 40% of the world’s population experience water shortages - by 2025 this will rise to over 75%”

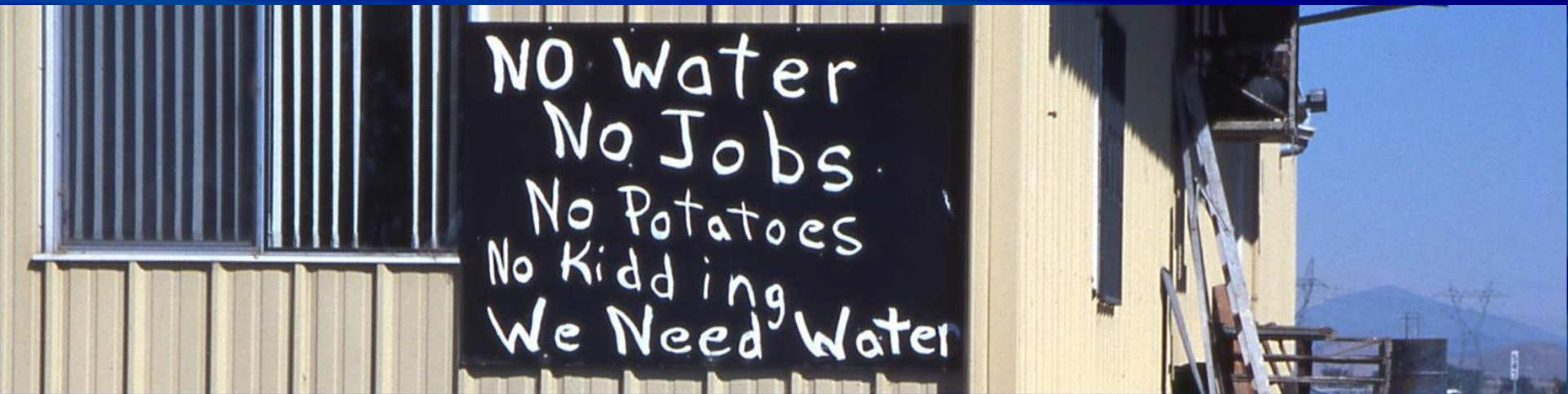
Ger Bergkamp, Former Director General, World Water Council



Zambia’s Response: Establishment of ZEMA in 2011 and Ministry of Green Economy and Environment in 2021 to lead national efforts on adaptation and mitigation strategies to Climate Change

Conclusion

As seen by impact of climate change on the various sectors, cooperation to combat climate change is tenable as evidenced by the global cooperation to address the Covid 19 pandemic.



Climate Change impacts Water and Gender
Let's manage it!
We can learn from Covid!

A white, cloud-shaped sticker is pinned to a brown corkboard. The sticker has the words "Thank you!!" written in a black, handwritten-style font. The word "Thank" is on the top line, and "you!!" is on the bottom line, slightly indented to the right. The background of the entire image is a solid blue color with a subtle, wavy pattern.

Thank
you!!