Climate Compatible Growth

ZAMBIA

Centre for Global Equality

ZAMBIA CCG ANNUAL WORKSHOP 2023 REFLECTION REPORT

EXTERNAL REPORT

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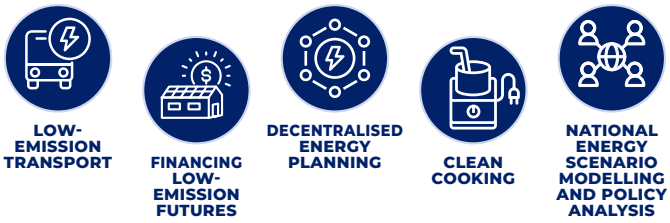
Overview

Introduction

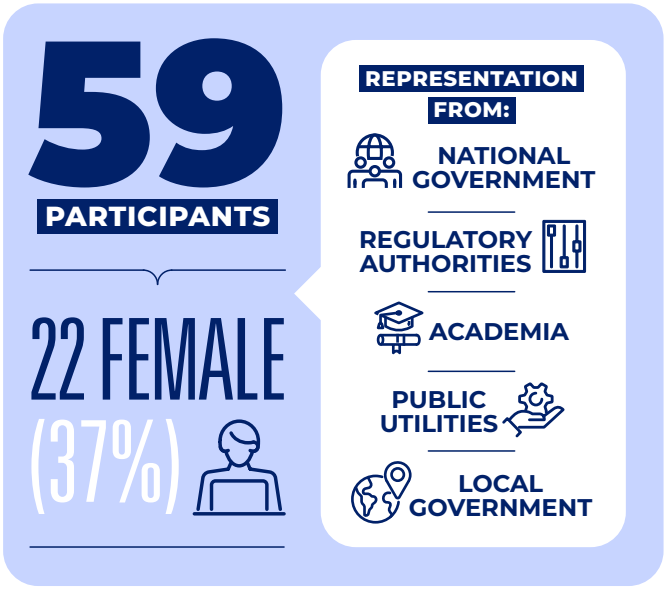
On the 9th–10th of March 2023, the Zambia CCG Network gathered at Chaminuka Resort to discuss how ongoing research and collaborations can support a low-emission future in Zambia. Hosted by the University of Zambia (UNZA), the workshop welcomed practitioners from across academia, government, and the private sector to engage in presentations, panel discussions, and breakout working groups on a variety of low-emission policy themes. These themes were rooted in the five "Special Interest Groups" (SIGs) that have formed around the ongoing research activities within the Zambia CCG Network. The five SIGs are:



The workshop marked the second annual gathering of the Zambia CCG Network. Since the network's Inception Workshop in 2022, collaborations and research activities have continued to grow, with numerous projects initiated under both CCG's Southern Partnership and Flexible Research funds. This year's Annual Workshop showcased research activities funded by the CCG programme, and also included presentations from research projects external to the CCG programme that are well aligned with CCG's research agenda. External CCG projects were incorporated into the SIGs that best fit with their respective research topics.

Dialogue was encouraged across different sectoral groups, and the policy context of the various projects was discussed. Topics covered related to the SIG topical areas outlined above and cross-SIG discussions focussed on how decentralised government funding structures can support inclusive energy planning at the subnational level.

This report aims to summarise the key discussions from the workshop broken down by each SIG, and provides a summary of all of the research projects that were presented at the workshop, both CCG-funded and non CCG-funded. Key interdisciplinary research areas that arose throughout the workshop that offer potential for cross-SIG collaboration in the coming years are also presented.



Attendee information

SIG Project Summaries

Low-emission Transport SIG: Ongoing projects

Transport-Energy Database (TED) for Zambia	
Collaborators: University of Oxford; Zambia Institute for Policy Analysis and Research (ZIPAR); Independent Consultant	**Project summary:** Decarbonising the transport sector will be key to achieving Zambia's green growth ambitions. However, the mechanisms for measuring, monitoring, and modelling the impact of transport sector policy interventions are currently inadequate. In particular, a lack of readily available data presents a barrier to progress. Therefore, this project is collating data to model decarbonisation pathways for the energy-transport system within a Zambia Transport Energy Database (ZTED). To populate the ZTED, the group has drawn upon existing datasets and identified data gaps to be filled by primary data collection. Further, key informant interviews and stakeholder engagement workshops have been carried out to identify the challenges that Zambian practitioners face when collecting and managing energy-transport data. Collectively, this work will serve as the basis for the development of a Transport, Energy, Air-pollution Model (TEAM) that can be used for transport sector policy development. This project complements research carried out in Laos and Kenya under the CCG programme, and the Laos-TED and Kenya-TED are freely available online.
Transforming Lusaka streets to prioritise pedestrians and cyclists	
Collaborators: ZIPAR; Institute for Transportation and Development Policy	**Project summary:** Increased uptake of public transport and non-motorised transportation (NMT) options could reduce emissions within the transport sector, while also reducing air pollution. However, many of the roads in Lusaka do not serve the needs of pedestrians and NMT travellers, with inadequate footpath and cycle lane coverage, along with unsafe pedestrian crossings, discouraging many from walking or cycling. This project seeks to develop an improved NMT action plan that addresses identified gaps in Lusaka's active mobility network. The project will produce a report posing recommendations for NMT corridors with associated implementation budget, finance strategies, and stakeholder engagement plans.
Mapping Public Transport in Lusaka	
Collaborators: World Resource Institute (WRI) Africa; Transport for Cairo; Smart Solutions Ltd; Zambia Road Safety Trust	**Project summary:** City planners across Africa face challenges in making data-driven decisions to improve public transport and NMT systems. This is, in part, because public transport in cities like Lusaka involve many informal systems and operational procedures (e.g., uncertain pick-up locations). This presents challenges for consistent data collection and system modelling. The DigitalTransport4Africa (DT4A) initiative uses a digital commons approach in curating and digitising public transport and NMT systems for cities across Africa. Focussing on Lusaka, the project team aims to develop user-friendly tools to model and estimate greenhouse gas emissions from bus fleets; quantify access level of integrated public and NMT systems; and identify suitable NMT corridors based on accessibility analysis, on-the-ground non-motorised-user audits, and road safety inspections. A key part of the project will be to provide training on emissions modelling and road safety inspections.

SIG Discourse

Databases developed by consultants are often not maintained once the consultancy ends.

How can databases be kept up to date and who should be responsible?

Government ministries should be shown the value of well maintained transport-energy databases.

How can investment into NMT initiatives be attracted?

City planning should be led by Zambian experts, rather than external consultants.

Electric vehicles (EVs) are expensive and inaccessible to most Zambians. Therefore, decarbonisation efforts should initially focus on supporting active transport adoption.

Inclusion of marginalised groups in transport planning must be a priority.

Financing low-emission futures SIG
Ongoing projects

Mobilising investment for climate compatible growth through Zambia's Constituency Development Fund	
Collaborators: University of Oxford; ZIPAR	**Project summary:** As part of its decentralisation policy, the Government of Zambia (GoZ) significantly increased funding to the Constituency Development Fund (CDF), from K1.6 million in 2021 to K28 million in 2023. There is potential for the CDF to be used to 'crowd in' investment from the private sector, including climate funds, to support sustainable, growth-enabling projects. The initial phase of this research project focuses on identifying what process and data optimisation might be needed for the CDF to operate within a blended finance structure. Through key informant interviews with actors from across the public, private, and non-government sector, the team maps the existing enabling environment for the CDF across various constituencies. Findings will be collated into a report, an open-source database on CDF investments, and a series of recommendations for promoting bankability of CDF projects.
Green Growth Prospects in Zambia – "GOPRO-ZAMBIA": Assessing economic implications of a sustainable low-carbon energy transition in Zambia	
Collaborators: UNZA; University of Edinburgh; Southern African Institute for Policy and Research; The Copperbelt University (CBU); TU Offenburg	**Project summary:** To support the GoZ in formulating and implementing its Green Growth Strategy (GGS), this project will develop an open-source energy system model using Python for Power System Analysis (PyPSA). The team will quantify the decarbonisation potential of the high-energy consumption sectors, and it will provide a detailed economic assessment of new areas of opportunities for trade, investment, job creation, and economic growth. From this, a series of reports on the status quo of the Zambian energy system and future energy system scenarios will be delivered. A PyPSA energy system analysis will be performed to identify system-optimal energy supply scenarios to inform sector-specific economic opportunities
Assessing the macroeconomic impact of Zambia's clean energy transition	
Collaborators: UNZA	**Project summary:** The GGS being developed requires evidence-based information and analytical tools to support its formulation and implementation to generate medium to long-term scenarios. This project aims to build a computable general equilibrium model and to calibrate green growth strategies and policies to assess their impacts on macroeconomic aggregates such as output, employment, value added, fiscal revenues, prices, poverty and welfare impacts, and the subsequent environmental outcomes. The model will support Zambian authorities' understanding of the impacts of different green growth measures on resource efficiency, productivity, and emissions.
Researching private sector investment in climate-friendly projects in Zambia	
Collaborators: UNZA	**Project summary:** Private sector investment into climate-friendly projects in Zambia will ensure a sustainable transition to a net zero economy. This project aims to interrogate the potential impacts of increased private sector investment in climate compatible projects in Zambia and the trade offs that may arise from this increased investment. In particular the team will consider how mobilising local and foreign investment towards climate-friendly projects could impact other, less climate-aligned sectors, along with the impact of such investment transitions on job creation and livelihoods in Zambia. Throughout the project up to 60 targeted interviews will be conducted, along with Focus Group workshops with a wide cross-section of relevant stakeholder groups. A key output will be the presentation of the project's findings and policy recommendations to the Zambian Ministry of Finance and Ministry of Green Economy and Environment.

SIG Discourse

How can emission-reducing projects be foregrounded within CDF processes?

If the CDF is to be used to encourage blended finance, how can high level buy-in be encouraged to support scaling?

There is a need for increased skills training to facilitate a just labour transition.

As the green finance sector grows, oil, gas, and mining industries could be targeted. Carbon Capture and Storage could be an option for these sectors to avoid asset stranding.

A comprehensive study on the impact of Zambia's green growth transition on the supply and demand for jobs across sectors is overdue. Which sectors will grow and shrink and what training plans will be needed?

Decentralised energy planning SIG
Ongoing projects

Decentralised Energy Planning for climate compatible growth in Zambia	
Collaborators: UNZA; University of Oxford	**Project summary:** Centralised energy planning can result in a disconnect between planned infrastructure and actual local demands, resulting in a failure to account for critical local economic growth sectors and community energy needs. Therefore, this research investigates how national energy planning could better align with and be inclusive of subnational energy needs. The team is carrying out a review of existing relevant policies, conducting semi-structured key-informant interviews and mapping economic growth priorities in several case study districts. Information gathered will then be synthesised to identify gaps and opportunities for improvements within the current system. From here, a series of SIG workshop activities will collaboratively identify the minimum viable data needs for effective district level planning and co-develop guidelines relevant for energy planning efforts.

SIG Discourse

Data collection tools should be standardised across Local Authorities.

For the CDF to be effective in attracting blended finance, low-emission projects need to be articulated by Local Authorities.

Training should be provided to Local Authorities not just on energy planning, but on data collection, data management, and data analysis for planning purposes.

Many Local Authorities do not have adequate servers for data storage, nor adequate computer systems and software.

Clean Cooking SIG
Ongoing projects

Zambia Energy System Chef: The energy system implications of transitions to clean cooking in Zambia	
Collaborators: UNZA; University of Edinburgh; PyPSA Meets Earth Initiative	**Project summary:** About 90% of Zambia's population has no access to clean cooking fuels and technologies[1]. Realising the urgent need for solutions, a clean cooking committee was initiated within the Ministry of Energy (MoE) to support the development of a data-driven implementation roadmap. However, achieving the GoZ's goal of phasing out charcoal by 2025 will be challenging. This research project aims to create different electricity demand scenarios reflecting various levels of adoption of electric cooking. Scenario modelling tools will be used to explore the implications of uptake of alternative clean cooking fuel such as synthetic produced green liquefied petroleum gas, ethanol, biomass (i.e., pellets), and biogas on the energy system. Using PyPSA, these scenarios will then be modelled to explore the implications of the different scenarios on grid development. This work closely complements the ongoing the United States Agency for International Development's (USAID) Alternatives to Charcoal (A2C) programme (see below).
National Clean Cooking Strategy & Action Plan	
Collaborators: USAID; MoE	**Project summary:** USAID is currently working closely with the Zambian MoE on the A2C project that aims to reduce charcoal energy consumption and increase the use of alternative, low-emission technologies and/or fuels, with a focus on urban and peri-urban areas. A key activity within this work is the development of a National Clean Cooking Strategy. Although still in its infancy, the Strategy will outline realistic targets for uptake of alternative, cleaner cooking technologies and fuels, e.g. electricity, liquified petroleum gas, wood, ethanol and biogas, in order to present a realistic pathway to the Strategy's ultimate goal of enabling universal access to clean cooking by 2035. The project's work will be informed by scenario modelling activities described above.

SIG Discourse

There is a lot of work being done around clean cooking, but awareness of the different projects and the available data is often low across the relevant stakeholders.

How can information be more effectively shared between stakeholders?

If you do research and you want to quote it as a national statistic, the Zambian Statistics Agency (ZAMSTAT) needs to endorse the work so that conflicting statistics are not being quoted.

How can the cost of switching away from charcoal be minimised for end users?

People who depend on the charcoal supply chain for their livelihoods must be supported in finding alternative income sources and should be provided with the required training to do so.

We need to have realistic assumptions and baselines before we start modelling efforts.

[1] https://data.worldbank.org/indicator/EG.CFT.ACCS.ZS?locations=ZM

National energy scenario modelling and policy analysis SIG
Ongoing projects

Integrating machine learning, surveys and qualitative approaches for context-relevant and disaggregated demand modelling in planning clean energy for Ghana and Zambia	
Collaborators: Tec Analytics Ltd; University of Energy and Natural Resources; TU Delft	**Project summary**: This project aims to support utilities in Ghana and Zambia in achieving their electrification targets in an inclusive and financially sustainable manner through least-cost spatial energy systems modelling that captures each country's socio-economic development plans. The project will use a mix of quantitative and qualitative approaches, including least-cost energy modelling using the open-source OSeMOSYS tool, AI geo-spatial least-cost modelling, and surveys, along with key informant interviews and focus group discussions. Key outputs will include spatially explicit models of energy access levels in both countries disaggregated by region and user group, along with a set of institutional, regulatory, and technical recommendations for achieving better energy access.
Integrated Resource Plan (IRP) Zambia	
Collaborators: Cities and infrastructure for Growth Zambia (CIGZambia); Zambian MoE	**Project summary:** CIGZambia has been working closely with the Zambian MoE and a plethora of stakeholders to develop the on-grid component of the MoE's IRP, which will feed into the GoZ's Power Sector Master Plan. The plan provides investment strategies for infrastructure that can ensure universal access to clean, reliable, and affordable electricity at the lowest total environmental, social, economic, and financial cost. With a horizon of 30 years (2022–2052), the IRP considers (i) supply sides, (ii) demand side, and (ii) transmission planning. The interaction between these components of planning is captured through least-cost planning modelling and policy scenario development. Numerous workshops and capacity building events have supported the Plan's development throughout the process. The next steps of the project will focus on IRP implementation.
Transition pathways towards inclusive climate compatible growth in Zambia (TRAPZ): modelling futures and decision-making	
Collaborators: ZIPAR; independent consultant; University College London; University of Oxford	**Project summary:** This project builds upon the Greening the Recovery (GtR) project. GtR, which ran from 2020 to 2022, focussing on aligning short-term recovery from COVID-19 with longer term social, economic, and climate policies. Building on the GtR project by providing additional evidence in support of inclusive transition pathways, TRAPZ will pursue three interconnected strands of research and capacity building by: (i) expanding on the modelling work initiated under GtR to co-develop a Zambia Energy Systems Model that is accompanied by economic impact analyses; (ii) collaboratively examining decision-making contexts for inclusive transitions with a focus on understanding "what makes energy projects bankable?"; (iii) training on policy making processes and engagement, aiming to bridge the gap between qualitative and quantitative aspects of energy and policy analysis.

SIG Discourse

Some government employees do not consider energy modelling expertise as beneficial for their roles.

The MoE should update policy planning strategies without relying on external consultants.

Where should energy modelling expertise be embedded to ensure longevity?

Energy modelling training should be accompanied by legal and financial planning training.

How can asset stranding be avoided throughout the energy transition?

How can subnational authorities be incorporated into national planning efforts?

Actors within health, transport, water, and agriculture, among others, should be involved in energy and power system modelling efforts.

Cross-cutting themes within the Zambia CCG Network

As the Zambia CCG network develops, focus will be placed on identifying areas of cross-SIG collaboration and knowledge sharing. Throughout the workshop, there were several cross-cutting themes brought up within the SIG breakout and panel sessions, highlighted below. Ensuring these three themes are considered and/or integrated into the Zambia CCG Network activities will require interdisciplinary collaboration and knowledge sharing across SIGs. The discourse surrounding each of these themes is summarised below. The inclusion of these topics within new research projects could offer the foundations for future projects within the Zambia CCG network.

A. Integrated planning

For Zambia to develop an effective, resilient GGS, planning roadmaps and frameworks must be well integrated. This translates to representing subnational energy and resource needs, while also accounting for the interests and targets of different sectors. To support integrated planning across sectors, long-term planning should incorporate development agendas of prominent sectors such as energy, agriculture, water, mining, and transport, at both the national and subnational level. Subnationally, Local Authority development plans should be captured and aggregated into national planning efforts. However, some Local Authorities currently lack adequate planning resources, a deficiency that is exacerbated by inadequate financial provision to develop energy and resource plans. Nationally, there is a need for both qualitative and quantitative scenario modelling that functions across Ministries. This will likely require the integration of multiple tools and approaches along with better data pipelines and data sharing between government and non-government stakeholders.

- How can sub-national planning documents and strategies be aggregated to effectively inform national planning processes?
- How could technical planning committee structures best enable cross-sector planning efforts and data sharing?
- How can planning processes be designed to minimise disruption during political transition periods?
- What sorts of skills development would help Local Authorities and national planning teams carry out integrated planning? Do training needs differ between these levels of government?
- Where are the opportunities for scenario modelling tool integration across different sectors?

B. Data management

Integrated planning requires reliable, up to date, comprehensive data to support scenario planning and policy development. Despite relatively prevalent data collection efforts within policy areas such as clean cooking and energy access, cross-stakeholder awareness of the various available datasets and project outputs could be improved. Greater centralisation of data across sectors could overcome this disconnect. For example, workshop participants discussed the need for more open-access databases into which stakeholders could deposit data. Participants also highlighted that such efforts should be coupled with training for Local Authorities, national planners, and other relevant stakeholders on data collection and data management best practice, along with training on how to develop evidence-based policy.

- Which stakeholders should be responsible for the custodianship of a centralised, cross-sector database?
- How can data curation be coordinated across sectors to ensure data is updated?
- How can donor coordination be improved such that awareness of data collection efforts is raised among stakeholders?
- What are the data needs for the various scenario modelling tools being used across the various sectors, and how can data inputs and outputs be better integrated?

C. Green jobs

As Zambia undergoes its green transition, the labour market in the country will change. To have a just transition, Zambia needs to ensure that individuals currently working within high-emission sectors and supply chains are not alienated. Accordingly, workshop participants agreed that modelling how different jobs will be impacted by sector decarbonisation should be a priority so that potential job losses and skills gaps can be identified. These predictions will be useful for identifying where pre-existing skill sets can be refocused to meet emerging green job requirements, or, alternatively, where an entirely new skills base needs to be nurtured. Training and research institutions are well positioned to develop training programmes to fill these gaps if given the resources to do so.

- How can the potential impacts of the green transition on the labour market be analysed?
- Where are the low-hanging fruit in terms of skills transfer from existing jobs in emission-heavy industries to future green jobs?
- Which institutions are best placed to design and deliver green job reskilling programmes?
- How can the changes in the labour market seen in other transitioning countries be used to inform reskilling efforts?

Outlook for the Zambia CCG Network

The activities of each SIG mark a step forward towards accomplishing the Zambia CCG's network long-term goal of supporting Zambia in achieving its low-emission growth ambitions, and we look forward to enhancing integration and collaboration across the Zambia CCG Network in the year ahead. As the network continues to produce research and policy recommendations, we will endeavour to support dialogues across the policy-research interface. In particular, over the next year we will be exploring how the Zambia CCG Network's outputs will contribute towards the following strategic initiatives:

- Iterative, socially-inclusive long-term national planning cycles (beyond 2030) with achievable targets that are benchmarked against reliable baselines.
- An integrated network of Zambian-owned analytical units and institutions that are relied upon by the GoZ for unbiased, reliable, and reproducible policy-facing data and analysis.
- Synergistic sector plans that clearly define the mandate for each actor within mutually beneficial resource management strategies.

If you are interested in learning more about the Zambia CCG Network and want get involved in any of the activities in this report, please contact the lead coordinators: **Dr Kabwe Mubanga** (*kabwe.mubanga@live.com*) and **Mr Clement Sichimwa** (*csichimwa@gmail.com*).

APPENDIX: WORKSHOP AGENDA

CAT	Day 1	Thursday, March 9th

08:30 – 09:30	**Opening Session: Low-Emission Growth in Zambia**
09:30 – 10:30	**Southern Partnership Fund Research Presentation Session**
10:30 – 11:00	Break
11:00 – 12:15	**Southern Partnership Fund: Panel Discussion**
12:15 – 13:00	**Plenary Session**
13:00 – 14:00	Lunch
14:00 – 14:45	**Southern Partnership Fund Research Presentation Session**
14:45 – 16:00	**Southern Partnership Fund: Panel Discussion**

CAT	Day 2	Friday, March 10th

08:30 – 08:45	**Opening Session**
08:45 – 10:00	**Flexible Research Fund Research Presentation Session**
10:00 – 11:00	**Zambia CCG Special Interest Group Breakout Discussions**
11:00 – 11:20	Break
11:20 – 13:00	**Low-Emission Transport Futures in Zambia: Panel Discussion**
13:00 – 14:00	Lunch
14:00 – 15:30	**Developing and financing an interdisciplinary Zambia Green Growth Strategy: Panel Discussion**
15:30 – 15:45	**Closing Remarks and Future Plans**

SIG IMAGES: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Loughborough University
STEER – Centre for Sustainable Transitions: Energy, Environment and Resilience
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