LOW EMISSIONS DEVELOPMENT STRATEGIES (LEDS) MODELLING SUPPORT, ZAMBIA

Jobs and Economic Development Impact Assessment across the AFOLU and energy sectors - Adapting the I-JEDI model

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Prof F.D Yamba

Nancy S. N'goma

CEEEZ
Centre for Energy, Environment and Engineering Zambia Limited

PRESENTATION OUTLINE

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- ENERGY(OFF GRID)
- AFOLU(CONSERVATION AGRICULTURE AND NATURAL FOREST ENHANCEMENT-NATURAL REGENERATION)
- I-JEDI MODEL USE IN ZAMBIA
- PROPOSED SCOPE OF WORK
- PROPOSED ACTIVITIES AND TIMELINE

BACKGROUND

- The aim of the project is to establish an analytical decision framework to forecast the cumulative socio-economic and climate impact of implementing Zambia's NDC objectives
- This will inform the establishment of optimal policy trajectories that can maximize climate objectives and socioeconomic priorities simultaneously in NDC implementation.
- This framework has two critical components:
  - **the strategic level**
  - **the operational level**

BACKGROUND

- The Strategic level is a harmonized policy decision-making structure across relevant line ministries.

Identified institutions for the Policy task force include:

- ✓ Ministry of Lands and Natural Resources
- ✓ Ministry of Energy
- ✓ Ministry of Agriculture
- ✓ Ministry of Transport and Communication (Meteorological department)
- ✓ Ministry of Water, Sanitation and Environmental Protection
- ✓ Ministry of National Development Planning
- ✓ Zambia Institute for Policy Analysis and Research.

BACKGROUND

- The Operational level is an analytical modelling structure comprising relevant software and hardware technologies, and a team of modelers with relevant technical capacity to conduct the extrapolation.
- The Strategy and Operational teams have been identified and will soon be formally appointed

Modeling team will consist:

- ✓ CEEEZ
- ✓ Department of Energy
- ✓ Forestry Department
- ✓ Zambia Institute for Policy Analysis and Research
- ✓ National Remote Sensing Centre
- ✓ University of Zambia – School of Agriculture Sciences
- ✓ ZARI

BACKGROUND

- A meeting was held in May 2017 to select projects from the Nationally Determined Contributions (NDC) portifolio which could be considered under this project
- Consequently, Zambia stakeholders prioritized clean energy and AFOLU at the sector level.
- These were further refined to the project level, where off-grid renewable energy (i.e. Mini hydro, solar PV and wind) to electrify rural areas and fuel switching of existing isolated diesel to mini-hydro were selected under the energy sector
- While under AFOLU, forest enhancement(natural regeneration), and conservation agriculture were the selected project priorities.

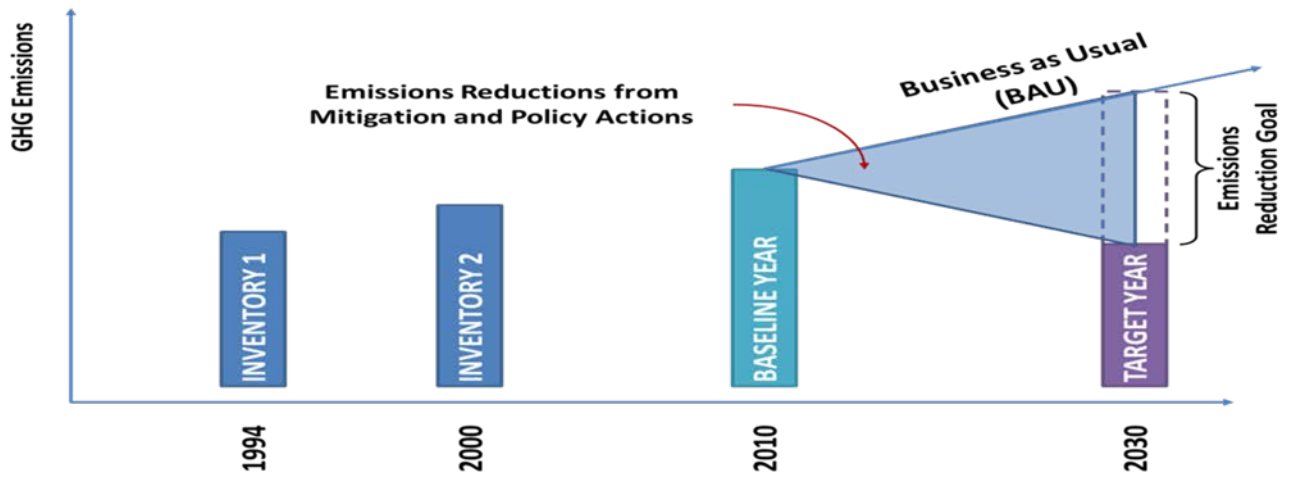
BACKGROUND

- The project technical team of NREL & partners will provide demand driven technical backstopping.
- This will complement progress already established in Zambia, to bridge specific technical, technological and tactical gaps established by the Zambia modelling team
- The modelling team will establish clear gaps - technical, tactical & technological - taking into account the need to complement current level of modelling development in-country
- And link climate mitigation through emission reduction with providing socioeconomic opportunities of income savings, GDP, expansion, jobs created by the chosen strategic trajectory .

ENERGY (OFF- GRID)

- Baseline setting for rural areas under energy (off grid) is characterized by use of biomass for cooking in form of firewood and charcoal, and lighting through use of kerosene and candles;
- And use of petrol and diesel engines for providing lighting and prime moving for maize milling, water pumping for human consumption, animals and irrigation.
- The project involves implementation of mini hydros, solar PV, wind and biomass as mitigation measures for providing emission reduction
- The tool for setting the baseline and emission reduction up to the year 2030 will be the LEAP model.

ENERGY (OFF- GRID)



AFOLU(CONSERVATION AGRICULTURE AND NATURAL FOREST ENHANCEMENT-NATURAL REGENERATION)

1. CONSERVATION AGRICULTURE

- Sustainable Agriculture through Integrated Crop and Livestock Farming and will be implemented in Mpika (Muchinga Province), Petauke (Eastern Province), and Kalomo (Southern Province)
- The baseline scenario assumes that there will be a continued inefficient use of inorganic fertilizers and a limited use of organic fertilizers in the absence of the intervention on sustainable agriculture through integrated crop and livestock farming

AFOLU(CONSERVATION AGRICULTURE AND NATURAL FOREST ENHANCEMENT-NATURAL REGENERATION)

2. FOREST ENHANCEMENT: NATURAL REGENERATION

- The main goal of this project is to increase the rate of forest regeneration and promote climate-resilient adaptation practices among forest-dependent communities in Zambia's Central Province.
  - The objective of the project is to address twin challenges of REDD+ implementation for climate mitigation and enhance climate resilience of ecosystems and communities through diversification of ecosystem-based livelihoods through Assisted Natural Regeneration (ANR), Agroforestry and Integrated Fire Management, as well as by addressing the current unsustainable utilization of biomass for charcoal by enhancing energy and resource use efficiency.

AFOLU(CONSERVATION AGRICULTURE AND NATURAL FOREST ENHANCEMENT-NATURAL REGENERATION)

- **Emission Reduction**

	2017	2020	2025	2030
Baseline Scenario Emissions	1.55	1.69	1.94	1.99
Mitigation Emissions	0.41	0.58	0.96	1.08
Total Reduction Potential	1.14	1.11	0.98	0.91

Jobs Economic Development Impact (JEDI) model in Zambia

- Assessing economic impacts of implementing projects in Zambia has become a requirement for monitoring development
- However, so far, only direct impacts are assessed
- The International-Jobs Economic Development Impact (I-JEDI) is a model that estimates economic impacts threefold, viz direct, indirect and induced
- Another important output of I-JEDI analysis is GDP estimation which indicates value addition across sectors
- JEDI model has been selected to quantify economic impacts (i.e., jobs, earnings and outputs) of Energy and AFOLU development projects

Jobs Economic Development Impact (JEDI) model

- The Zambia-JEDI model was derived from social accounting data from the International Food Policy Research Institute (IFPRI)
- Labor, price index (inflation) data from the Zambian Central Statistical Office and the World Bank

Jobs Economic Development Impact (JEDI) model Use in Zambia

- CEEEZ worked with the Rural Electrification Authority (REA) to incorporate the JEDI model into three projects to enable them report on estimated number of jobs created during construction and O&M phases, directly and indirectly.
- The projects were grid extension, solar mini grid, and a proposed mini hydro.
- The output information was to be used in the institution's M&E framework

PROPOSED SCOPE OF WORK

Approach: NREL to support in-country Zambia technical team to develop an enhanced I-JEDI model that can be dynamically linked with LEAP to bring in emission outputs to provide a holistic view of both socio-economic and climate indicators of the actions in the prioritized energy and AFOLU sectors.

- **First step**: Collecting data sets, setting emissions baseline methodology and outlining concrete next steps
- **Enhancing the I-JEDI**: will involve identifying the data needs to estimate marginal impacts of transitioning from one source to another for the proposed project scenarios
- **Linking with LEAP**: will be done using its standard Application Programming Interface (API) which will provide integrated results that will look across sectors and provide the ability to forecast cumulative socio- economic and climate impacts

PROPOSED ACTIVITES AND TIMELINE

Task	Date	Status
Consensus on approach	20 June	Completed
Kickoff webinar with all stakeholders	27 June	Completed
Data collection	9-21 July	To be competed
Baseline analysis	23July- 3 August	To be competed
Development of enhanced IJEDI	23-28 July	To be competed
Development of linkages with LEAP	Early September	To be competed
In-country technical training	Mid-September	To be competed
Remote support	October - November	To be competed
In-country workshop to present integrated results	Early December	To be competed
Publish report	January 2019	To be competed

THANK YOU

Centre for Energy Environment and Engineering Zambia (CEEEZ) Ltd, 176 Parirenyatwa Road

Suite B. Fairview, P/B E721

Lusaka, Zambia

Tel/Fax: +260 211 223118

Email: ceeez2015@gmail.com