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Mitigating the Effects of Adverse Climatic Conditions in Zambia

By
Shadreck Mpanga

Presentation Outline

1. *Brief Overview*
2. *The Energy Sector*
3. *Mitigation Measures*
4. *Conclusion*

1. Brief Overview

Fig. 1.1. *Water Bodies*

Fig. 1.2. *The most stunning geographical feature is the Victoria Falls, on the southern border with Zimbabwe, and is one of the natural wonders of the world.*

Fig. 1.3. *The naturally formed "Devil's Pool", where some tourists swim despite a risk of plunging over the edge*

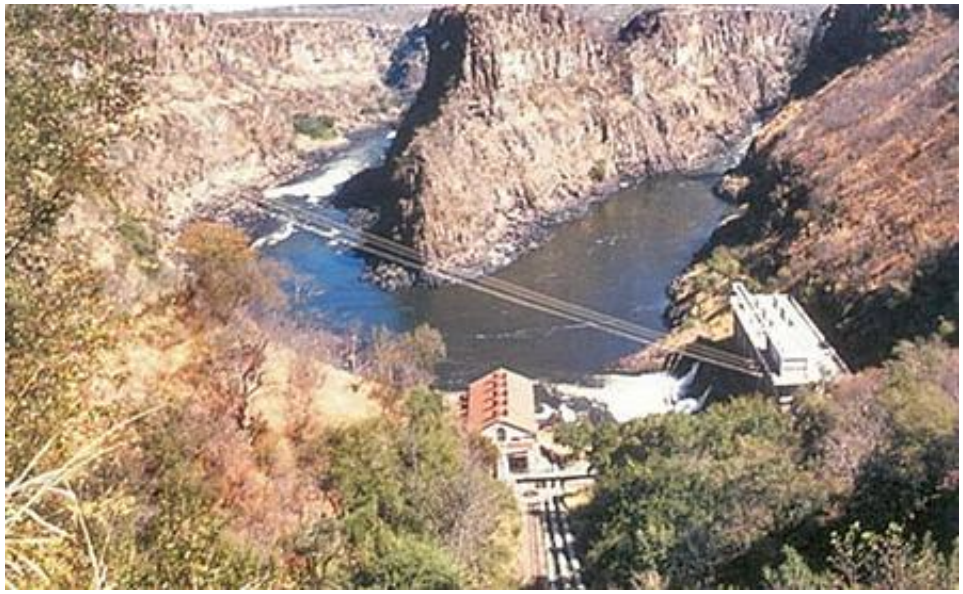

Fig.1.4. Victoria Falls Power Station

Fig.1.5. Kariba North Bank Power Station

Fig. 1.6. *60 kW Solar mini-grid power plant, Samfya, Zambia.*

Fig. 1.7. *Control room for the 60 kW Solar mini-grid power plant, Samfya, Zambia.*

2. The Energy Sector

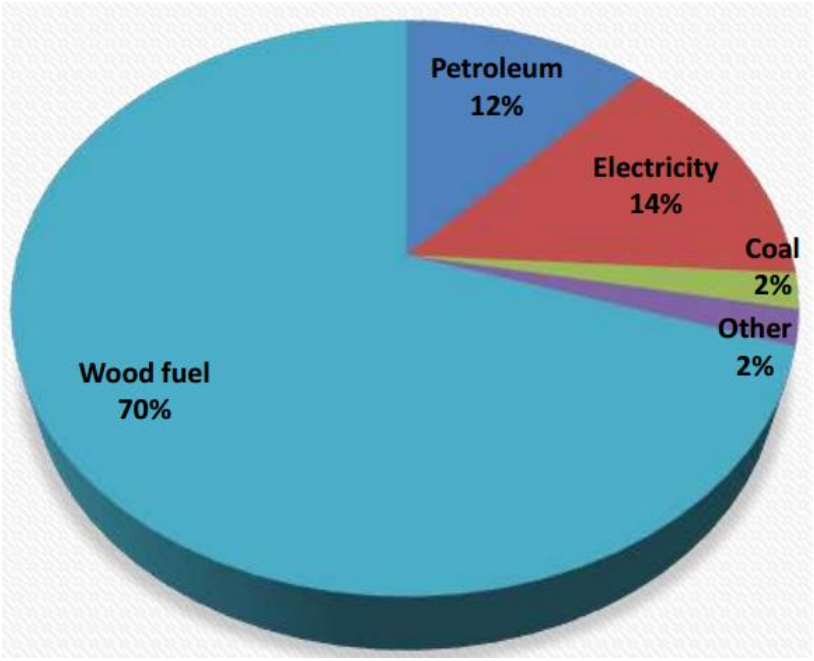

Fig. 2.1. *Energy demand by source*

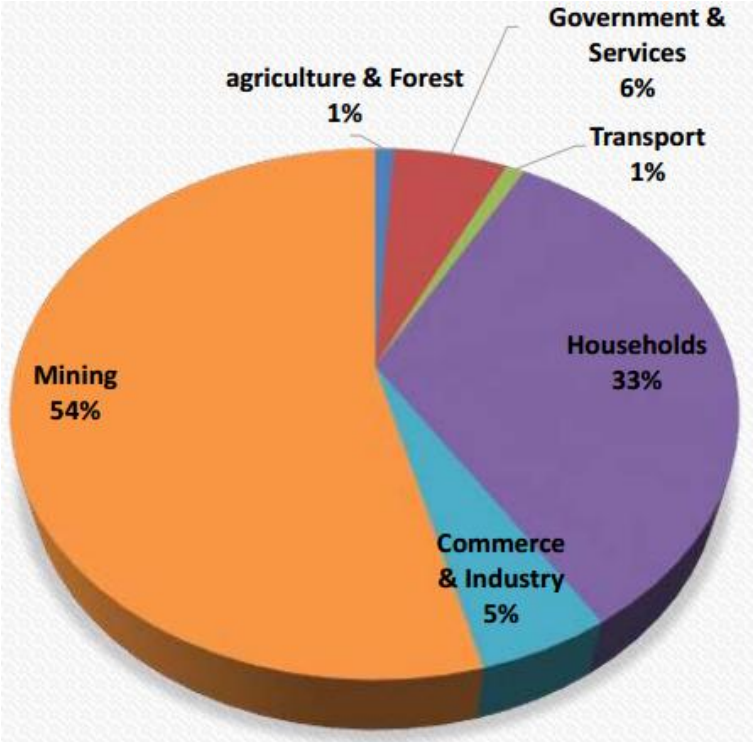

Fig. 2.2.. *Electricity consumption by group*

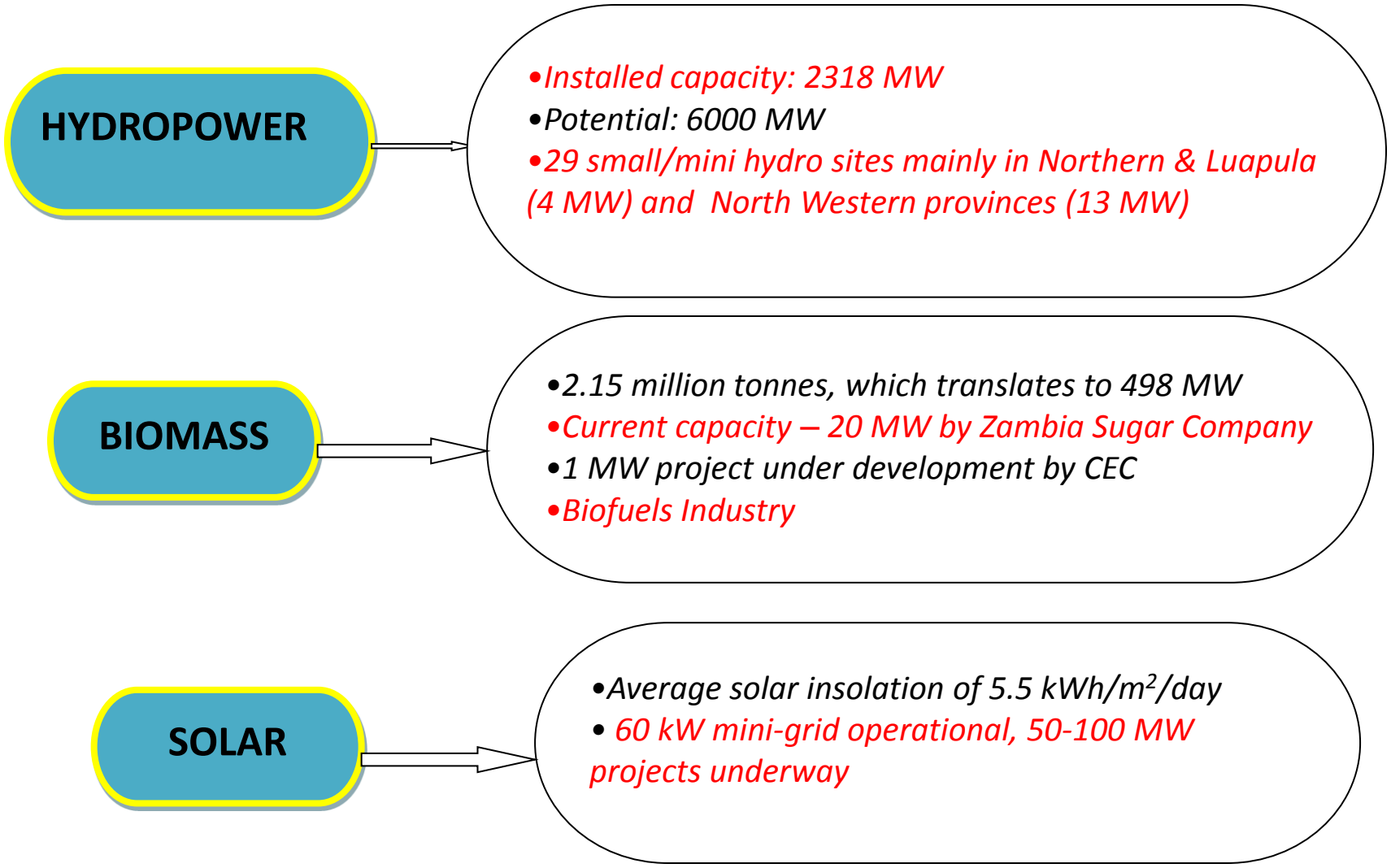

Fig. 2.3. *Energy sources already explored*

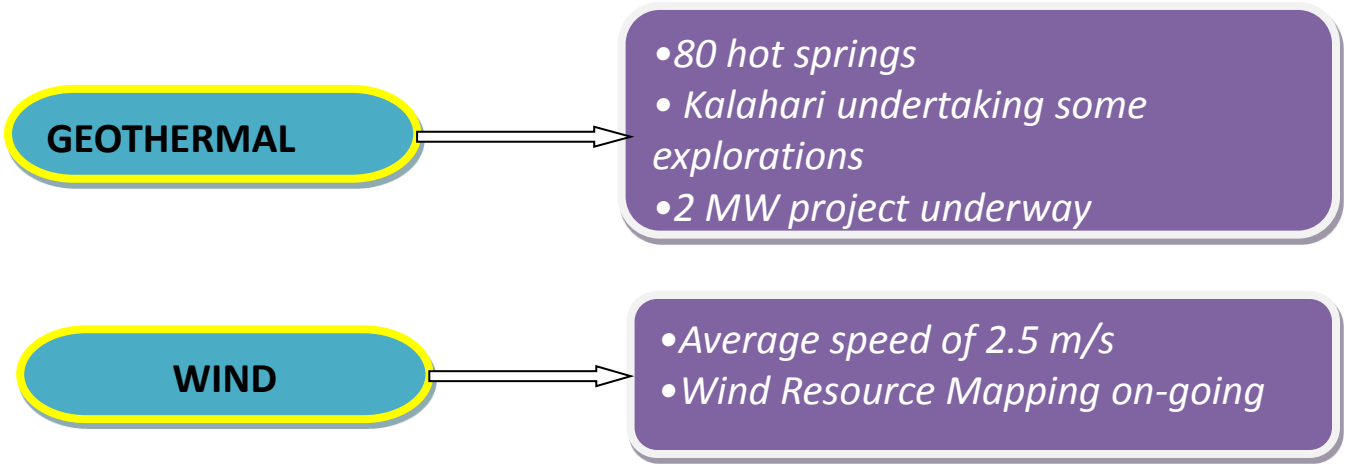

Fig.2.4. *Energy sources currently under exploration*

Table 2.1: *Generations in the months of Dec. 15 &Feb.16*

Item	*Station*	*Generation amount [MW]*		*Installed Capacity [MW]*
		Dec.	*Feb.*	
1.	*Kariba North Bank*	*310*	*275*	*1080*
2.	*Kafue Gorge*	*650*	*540*	*990*
3.	*Victoria Falls*	*55*	*91*	*108*
4.	*Itezhi-tezhi (New)*	*#*	*30*	*60 (×2 later)*
5.	*Lunsemfwa*	*#*	*14*	*56*
6.	*Small Hydros*	*#*	*13*	*25*
TOTAL:		*1015*	*963*	*2319*

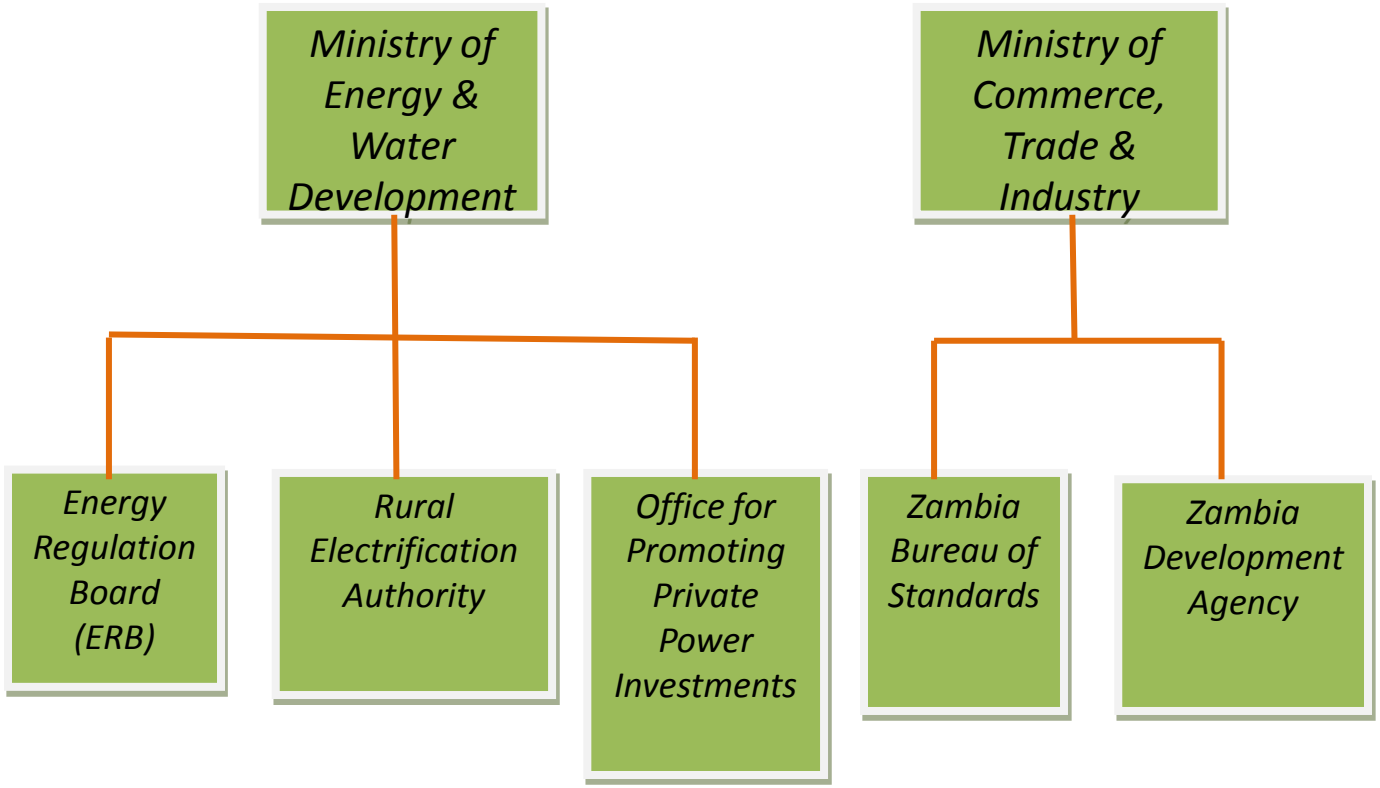

Fig. 2.5. Institutional framework

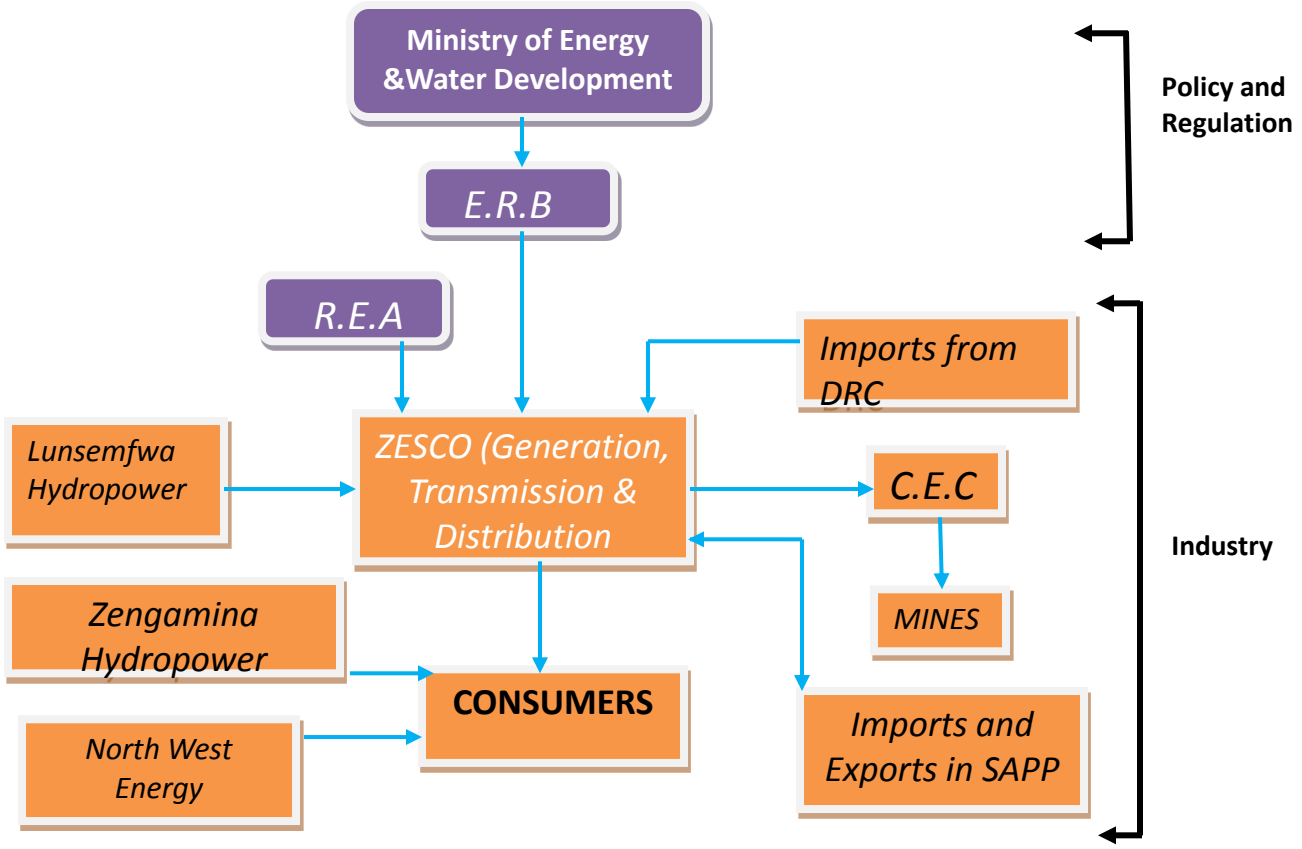

Fig. 2.6. *Policy Implementation*

3. Mitigation Measures

3.1 Energy Solutions

Table 3.1: *Expected installed generation by 2030*

Item	Station	Type	Installed Capacity [MW]	Status
1.	*Kariba North Bank*	*Hydro*	*1080*	*Operational*
2.	*Kafue Gorge*	*Hydro*	*990*	*Operational*
3.	*Victoria Falls*	*Hydro*	*108*	*Operational*
4.	*Itezhi tezhi*	*Hydro*	*120*	*Partly commissioned*
5.	*Maamba*	*Coal Fired*	*300*	*To be ready in 2016*
6.	*Batoka Gorge*	*Hydro*	*1600*	*Pre-feasibility Studies done*
7.	*Kafue Lower*	*Hydro*	*750*	*Feasibility Studies done*
	TOTAL:		*4948*	

- *However, studies reveal that seasonal climate variability will affect hydropower generation by reducing water run-off and reservoir storage capacity in dry years.*

- *To mitigate such risks, integration of renewable energy sources other than hydro in the power generation plans in order to sustain future demand is recommended.*

- *One of the research works going on in Zambia is called Network of Energy Excellence for Development (NEED). This can be found on the following website:*

www.need-project.org

Network of
Energy Excellence
for Development

Fig.3.1. NEED Fruitful Interactive Group Discussions during the Public Part of the Meeting with External Stakeholders in Botswana, September 2015.

Fig.3.2. Energy Solutions in Southern Africa (Namibia)

3.2 Agriculture Solutions

- *The Republican President has unveiled a three-option plan to deal with the looming food crisis in the wake of a devastating drought that has hit most parts of Zambia.*

(a) Growing of irrigated maize to meet the shortfall.

(b) Engaging the Food Reserve Agency (FRA) and Zambia farmers' union to "mop up" all the maize in the country, as well as to assess the deficit.

(c) Importation of maize if it is established that there is a deficit and local farmers cannot grow enough irrigated maize to fill the gap.

4. Conclusion

- *Due to reduced rainfall activity in recent years, the most affected are the energy and agriculture sectors.*

- *The country has found it important to invest more resources into water infrastructure and water harvesting because Zambia has numerous water bodies.*

- *Diversification into renewable energy technologies will help solve some of the energy problems in many households in the country.*

THE END!

THANK YOU ALL FOR YOUR ATTENTION!

Shadreck.mpanga@gmail.com

Phone:+260-968-083850