FIFTH SESSION – NINTH PARLIAMENT

REPORT

OF THE JOINT PORTFOLIO COMMITTEES ON ENERGY AND POWER DEVELOPMENT AND ENVIRONMENT, CLIMATE AND TOURISM

ON

THE BENCHMARKING VISIT TO STOCKHOLM, SWEDEN

18 TO 25 FEBRUARY

PRESENTED TO PARLIAMENT JUNE, 2023

1.0 INTRODUCTION

The joint Portfolio Committees on Energy and Power Development and Environment, Climate and Tourism embarked on a benchmarking visit to Stockholm, Sweden from 18 to 25 February, 2023. The delegation comprised Hon. G. Gabbuza, Chairperson of the Energy and Power Development and leader of the delegation,

- Hon. E Musakwa, Energy and Power Development Committee Member,
- Hon. S. Dzuma, Energy and power Development Committee Member,
- Hon. N. Tsuura, Energy and power Development Committee Member,
- Hon. W. Y. Musarurwa, Chairperson of the Environment, Climate and Tourism Committee,
- Hon. E. Shirichena, Environment, Climate and Tourism Committee Member,
- Hon. J. Munetsi, Environment, Climate and Tourism Committee Member,
- Hon. C. Maronge, Environment, Climate and Tourism Committee Member,
- Mr N. Samu, Chief Director, Parliamentary Programmes
- Mrs T. Makunike-Kanjanda, Committee Clerk and
- Mr J. Mazani- Committee Clerk.

African Development Bank under the Institutional Support for Governance and Public Finance Management Project funded the benchmarking visit to Sweden. Her Excellency, the Ambassador of Sweden, Hon. Priscilla Misihairabwi-Mushonga play a pivotal role in facilitating the meetings and tours with all the Swedish institutions visited by the Parliamentary delegation.

2.0 OBJECTIVES OF THE BENCHMARKING VISIT

The main objective of the visit was to benchmark on the measures that the Swedish Government adopted to promote and develop its renewable energy mix with a long-term view of a net-zero carbon emission by 2050.Understanding the renewable energy mix initiatives helps Members of Parliament to enact laws and make regulations that require public investment and incentivize private investment in green infrastructure. More specifically, the delegation sought to;

1. Understand the strategies that were used by Swedish energy players to increase energy supply and contribute to access to modern energy,
2. Appreciate how the Swedish Government collaborated with its research and development institutions with respect to sustainable consumption and production in addition to waste-to-energy initiatives,
3. Learn Swedish best practices in lithium battery manufacturing and
4. Take advantage of the Swedish model of creating co-working space for entrepreneurs trying to solve social problems such as pollution and climate change.

3.0 METHODOLOGY

In order to get an in-depth understanding of the issues under discussion, the delegation held short briefing meetings with the management of the institutions. After the meetings, the delegation would embarked on guided tours of the premises visited. During these meetings and tours, the delegation shared their experiences and sought further clarifications in order to conceptualise the issues.

Places Visited by the Delegation to achieve its objectives

The delegation held meetings and toured the premises of the following institutions in Sweden;

a) **Absolicon**, the delegation learnt about a Robotised Production Line for solar collectors,
b) **Riksdag** (Swedish Parliament), the delegation met their counter-parts in the Industry and Commerce Committee and the Environment Committee,
c) **Swedish Environment Research Institute** called IVL to understand the energy and environmental research initiatives including the collaborations between the institute and its major stakeholders,
d) **The Stockholm Royal Seaport**, the delegation learnt a lot about the concept of sustainable cities using five strategies to develop a vibrant city,
e) **Northvolt**, the delegation learnt about lithium battery manufacturing and sought partnership opportunities on the production of lithium batteries,
f) **Norrsken Foundation**, to learn about the Swedish model of creating a co-working space for entrepreneurs,
g) **EKOGAS**, the delegation tour the biogas plant that uses food waste to produce methane gas and biogas fuel, and
h) **Gastrike atervinnare**, a recycling company that specialises in green business and sustainable waste management turning waste into value.

4.0 FINDINGS

4.1 Strategies used by Swedish energy players to increase supply and access to energy

The delegation learnt that Europe and China were competing for the available limited Liquid Petroleum Gas. As a result, United States of America was becoming the world's leading gas supplier of liquid natural gas as Europe lacked Liquid Petroleum Gas regasification facilities. The European Union was depended on gas import from Russia which constituted around 45% of its gas requirements. However, the Russian-Ukraine crisis had affected the supply chain and tremendously pushed the gas prices up. Thus, the adoption of renewable energy became a viable alternative in Sweden to solve such an energy crisis. The delegation was informed that the Swedish energy sector was supported by public and private financing. The production and transmission of power in Sweden was both owned and run by separate companies.

The delegation found out that after Germany, Sweden was the second country in the world to be fossil fuel free country and was one of the leading countries with effective climate laws. The delegation realised that it had taken between 10-15 years for Sweden to transition completely from fossil to clean energy solutions. Sweden's energy mix consists of 50% hydro, 25% nuclear and 25% biomass, solar and wind. The country produces around 160-170 terabytes of power annually. Sweden mainly relied on the use of an integrated energy system approach and exports excess power to neighbouring countries such as Finland, Norway and the Baltic Islands which make up its power pool.

Absolicon is a private energy player in Sweden that invented a solar thermal collector which is used to produce heat directly from the sun that can be used by industries and other consumers instead of using electricity for heat production.

The following were found to be advantages of using solar thermal collectors;

a) If the robotised production line is installed in Zimbabwe, the solar collectors would easily promote local industries,
b) The solar collectors could relieve pressure from the main power grid,
c) Absence of electrical power instability problems,
d) Solar collectors withstand all weather conditions, and
e) They can be installed easily.

The Committee learnt that the gas crisis triggered by the Russian-Ukraine war had forced most European countries to revert to the use of thermal power plants for heat production as their cold weather compelled them to rely heavily on energy.

4.2 Sustainable waste management and waste-to-energy initiatives in Sweden

Sweden implemented what it termed a "climate stop" government funding to promote fossil fuel free projects around the country. The delegation found out that most European Union countries preferred to reduce, recover and recycle waste to the use of engineered landfills. The delegation also found out that there was a company called ECOGAS that specialised in the production of energy from organic waste. The company produced about 2 200 gigabytes of thermal electricity from biogas. It operated twelve recycling yards and had forty vehicles used for waste collection. The company collected sorted organic waste from households in compliance with the law

introduced in 2005 that banned the mixture of waste in one disposal bag. Residents were fined for failing to sort out their waste. The delegation learn that the company had an effective customer service centre which was responsible for tracking waste collection from residents as well as refuse collection fees. The main responsibilities of the company included;

a) Collection and treatment of household waste;
b) Regional waste management planning;
c) Dissemination of information to the public; and
d) Development of local regulations and refuse collection fees.

4.3 Collaboration between Swedish Government and research and development institutions

The delegation found out that the Swedish government works with the Swedish Environmental Research Institute called IVL. The Institute deals with the research for all the sustainable development goals and was founded in 1966. The delegation learnt that funding for sustainable waste management and energy efficient research projects came from the European Union rather than the Swedish Government. As a result of these research initiative, Sweden was leading in the adoption of renewable energy mainly due to the investment in issues such as behavioural change and effective legislation.

The following were some of the steps taken by the Swedish government to encourage the adoption of renewable energy;

YEAR	LEGISLATION INTRODUCED IN SWEDEN
1991	Municipal waste planning became compulsory
1994	Introduction and enforcement of Producer responsibility
1999	Introduction of Landfill tax
2002	Ban on landfills for combustible waste
2005	Ban on landfill for organic waste
2009	National target the recycling of food waste.

Through their current waste management system, Sweden had an energy recovery potential of 90% from its waste. 65% of this is meant for heat produced, 25% is electricity while only 10% constitutes energy loss. Sweden incorporated a curriculum on waste management in its education system starting from kindergarten stage, as a way to cultivate a positive behavioural change. The curriculum included the use of colour coded waste disposal bins to ensure the sorting of waste from source to the final disposal.

4.4 Sustainable Cities and Communities

The delegation found out that the development of Stockholm Royal Seaport in Sweden was primarily based on SDG 11, Sustainable Cities and Communities, although it worked actively across all the goals. The Stockholm Royal Seaport contributed locally to achieving the SDGs and create synergies and leverage effects between economic, environmental, and social sustainability. It was managed by five municipalities in collaboration with land developers. The delegation learnt about the concept of sustainable cities using five strategies to develop a vibrant city and this concept was first launched in 2009. These strategies were participation, consultation, letting nature do the work, accessibility and proximity. The delegation learnt that the city was built with vacuum waste inlets for waste collection as a mechanism for waste management. The waste was being used to generate heat which caters for 130 000 households in the area.

4.5 Swedish best practices in lithium battery manufacturing

The delegation visited the biggest battery manufacturing company in Sweden called Northvolt. Northvolt was founded to enable the transition to a decarbonized future by supplying sustainable lithium-ion batteries. The delegation found out that the Company specialized in battery manufacturing and focused mainly on the automotive sector, industrial sector as well as energy storage and portables. It was the first European based company to manufacture clean energy batteries that promote low carbon footprint. The delegation learnt that the company used fossil fuel free materials to manufacture its batteries. Although the Company targeted to use 50% of recycled materials by 2030 as part of promoting a circular production in the country, the delegation found out that the key focus areas it used to sustain the strategy to produce greenest batteries were anchored on sustainability, manufacturing, supply chains and emission reduction. The delegation learnt that the company purchased its raw materials such as lithium, magnesium, nickel and other compounds from countries that had sustainable mining practices as well as compliance to ethical standards. It also learnt that the company manufactures 300KV batteries with a lifespan that averages around eight to ten years because of the rich quality of the raw materials used in the production.

4.6 Swedish model of creating co-working space for entrepreneurs

The delegation visited a start-up hub in Stockholm that houses more than 300 entrepreneurs called Norrsken. Sweden's Norrsken Foundation had helped social tech entrepreneurs in Africa and elsewhere to solve societal and environmental challenges by investing in their ideas financially. Start-up hubs played an important role in the development of the tech ecosystem. They foster innovation for tech start-ups. They help the businesses scale and achieve their goals by offering them with working spaces, electricity, internet connectivity, and other infrastructure, incubation programs, business advisory and legal services as well as other forms of assistance. The delegation learnt that the start-up hub was founded in 2016 in Stockholm. It had developed two other sites in Barcelona and Kigali. The hub offers offices for the upcoming entrepreneurs to use for one and half years before being released into the world to implement and grow their innovative ideas. The company has an open-door policy to potential entrepreneurs and often work on environmental sustainability issues.

4.7 Zimbabwe Sweden Relations

The delegation learnt that under the engagement and re-engagement policy, relations between Zimbabwe and Sweden had improved immensely. As a result, Sweden had already presented an opportunity for Zimbabwe to learn the best practices relating to energy transition from fossil fuels to green energy. The visit by the delegation from Parliament would help the re-engaging process through shaping the two countries perceptions.

4.8 Challenges observed at the Embassy

The delegation noted the main priority issues to be addressed at the Embassy as follows:

- Zimbabwe to Sweden Embassy has only five employees. Given the Embassy's territory, the delegation observed that the Embassy was short-staffed and the current employees would end up performing certain duties outside their designated roles. It was noted that there were no security officers manning the Embassy residence in Sweden.
- The Chancellery had been housed at its current location since 2002, but it was working on relocating to a more spacious location by the 31st October 2023.
- The delegation noted that at the Embassy, the Swedish local employees at the residence were remunerated higher than the Zimbabwean employees, for instance, the chauffer was being paid an equivalent of US$4500 per month.
- Sweden is generally a very expensive country and the budget allocations were not adequate to cover most of the expenses incurred by the Embassy. For example, hosting of delegations and the payment of services of consultancies at the Embassy.

5.0 OBSERVATIONS

The following were the observations of the Committee;

a) Sweden industrial sector was the primary consumer of electricity required for heat production. Similarly, Zimbabwe's industrial sector consumes approximately 58% of electricity for heat production.
b) Sweden does not have abundant sunshine as most of its winter months are cloudy and snowy. Zimbabwe, despite its vast solar energy potential, is one of the countries that utilises thermal electricity for its industrial heating requirements. Zimbabwe has a huge potential to invest into the production of black metal sheets that were used to manufacture solar collectors in Sweden.
c) The solar collectors could be an immediate win for the Zimbabwe's agricultural sector through tobacco curing if the Forestry Commission as well as the Tobacco Industry and Marketing Board could embrace the solar thermal collector project.
d) It was encouraging that, Zimbabwe Electricity Supply Authority (ZESA) had started negotiations with Absolicon for the supply of a robotized solar collector production line. Although this is the first time Absolicon has ventured into such an engagement with any government power company. ZESA, Absolicon had embarked on a pre-feasibility study

program where Absolicon would provide skills transfer for the robotized solar thermal collector production line.

e) Sweden's concept of sustainable consumption and production and waste management through sorting of waste could be very beneficial if implemented together with the devolution thrust. Sustainable consumption and production dovetails neatly with the concept of urban renewal as the national gears towards the new city in Mount Hampden. Private land developers would be invited to bring tenders for their sustainable land development plan.

f) The delegation observed that Northvolt purchased its raw materials such as lithium, magnesium, nickel and other compounds from countries that had sustainable mining practices. Zimbabwe could take advantage of this benchmarking visit and establish partnerships, through the Zimbabwean Embassy and the Sweden diaspora community, for lithium battery manufacturing in line with what was observed at the North Volt Company. A fully fledged delegation from the Executive could be established to engage Northvolt to open a lithium battery manufacturing plant in Zimbabwe.

6.0 RECOMMENDATIONS

The delegation recommended the following;

1. The Ministry of Energy and Power Development should develop policy initiatives that promote solar thermal solutions to ensure energy security for industries, reduce CO2 emissions and fossil fuel dependency by December 2025. Investment start-up capital should be granted to the private sector in order to revive the energy sector.
2. The Ministry of Mines and Mining Development working with the Zimbabwe Investment and Development Agency (ZIDA) should ensure compliance to policies that attract and promote foreign investments and business opportunities to develop partnerships with companies such as Northvolt by December 2025.
3. The Ministries of Mines and Mining Development and Industry and Commerce should collaborate, value add, integrate lithium-ion battery value chain and recycling in their operations by December 2025.
4. The Ministry of Industry and Commerce should engage technocrats to support the innovative capacity within the research and academic fields to come up with ideas that promote sustainable waste management strategies and circular production by December 2025.
5. The Ministry of Small to Medium Enterprises should organise a benchmarking visit to Kigali, Rwanda to learn about the Norrsken incubation hubs for potential entrepreneurs by December 2025.
6. The Ministries of Environment, Climate, Tourism and Hospitality Industry should review the existing legislation and identify gaps for amendments using the Swedish environmental law as a model by December 2025.
7. The Ministry of Local Government and Public Works should formulate a masterplan that supports the development, construction and implementation of sustainable cities concept by December 2025.

8. The Ministry of Environment, Climate, Tourism and Hospitality Industry should begin awareness campaigns on the sorting of waste, establishing points of refuse collection and disposal and implementing a legally binding extended producer responsibility by December 2024.
9. Ministry of Finance and Economic Development should continue to mobilise and disbursement of necessary resources the support the work of Zimbabwe Embassies by January 2024.
10. Treasury should increase the budget allocation for the embassy to cover all the expenditure requirements. The salaries of the Embassy staff should be increased to above the Swedish poverty datum line and payed timeously. There was need to increase the staff compliment at the Embassy to include a trade attaché and consular by January 2024.

7.0 CONCLUSION

The benchmarking visit helped the delegation to realise numerous approaches that could be adopted to improve our renewable energy mix and waste management practices in the country. It has also opened avenues of Parliamentary partnerships in the various sectors visited. Thus, a series of inquiries into the concepts of solar thermal, sustainable cities, sustainable consumption and production, circular production and the manufacturing of lithium batteries have to be embarked on. These inquiries, among others will assist in finding lasting measures that not only encourage industries to adopt more sustainable production practices but make producers responsible for the disposal of post-consumer products after the end of their useful life.