

SECOND REPORT OF THE COMMITTEE ON ENERGY, ENVIRONMENT AND TOURISM FOR THE FOURTH SESSION OF THE TENTH NATIONAL ASSEMBLY APPOINTED ON 24TH SEPTEMBER 2009

Consisting of:

Mr P P Chanda, MP (Chairperson); Mr G G Nkombo, MP; Mr A Simama, MP; Mrs J M Limata, MP; Mr P Sichamba, MP; Mr J J Mwiimbu, MP; Mr J Shakafuswa, MP and Mr V Mwale, MP.

The composition of your Committee changed following the replacement of Mr V Mwale MP, by Mr G Namulambe, MP.

The composition further changed following the appointment of Mr G Namulambe, MP as Deputy Minister in the Ministry of Mines and Minerals Development and the appointment of Mr S Musonda, MP to your Committee.

The Honourable Mr Speaker,
National Assembly,
Parliament Buildings,
LUSAKA

Sir,

Your Committee has the honour to present their Second Report for the Fourth Session of the Tenth National Assembly.

Functions of the Committee

2. In addition to any other duties placed upon it by Mr Speaker or any Standing Order or any other order of the Assembly, the duties of the Committee on Energy, Environment and Tourism are as follows:

- i. to study, report and make appropriate recommendations to the Government through the House on the mandate, management and operations of the Government ministries, departments and/or agencies under its portfolio;
- ii. to carry out detailed scrutiny of certain activities being undertaken by the Government ministries, departments and/or agencies under its portfolio and make appropriate recommendations to the House for ultimate consideration by the Government;
- iii. to make, if considered, necessary recommendations to the Government on the need to review certain policies and/or certain existing legislation; and
- iv. to consider any Bills that may be referred to it by the House.

Meetings of the Committee

3. During the year under review, your Committee held sixteen meetings.

Procedure Adopted by the Committee

4. During the course of their deliberations, your Committee considered and adopted the following programme of work:

- i. consideration of submissions on Report of the Auditor-General on Provision of Water in Zambia;
- ii. consideration of submissions on Report of the Auditor-General on Solid Waste Management in Zambia;
- iii. detailed study and consideration of submissions on climate change adaptation and mitigation in Zambia;
- iv. tours arising from deliberations; and
- v. consideration of issues of the Action-Taken Report on your Committee's First Report for the Fourth Session of the National Assembly.

PART I

CONSIDERATION OF THE REPORT OF THE AUDITOR-GENERAL ON PROVISION OF WATER IN ZAMBIA

5. The Office of the Auditor-General conducted a performance audit between April and June, 2005. The audit was motivated by the increasing public concern on domestic water shortages and unsatisfactory service delivery.

The main objective of the audit was to ascertain whether water utility companies had achieved their goals and objectives in the provision of domestic water services to consumers and to provide recommendations in order to improve water supply.

The audit involved a review of relevant records held at the National Water and Sanitation Council (NWASCO), Ministry of Local Government and Housing and with water utility companies.

Submission from the Acting Permanent Secretary, Ministry of Local Government and Housing

6. The Acting Permanent Secretary informed your Committee that the medium term vision and goals of the water supply and sanitation sub sector were as set out below.

- i) water supply and sanitation sub-sector vision: For Zambia's urban and rural population to have sustainable and equitable access to safe water supply and proper sanitation to meet basic needs for improved health, alleviating poverty, and contributing to achievement of Millennium Development Goals and Vision 2030; and
- ii) urban water supply and sanitation goal: To increase access to safe, reliable and convenient quantities of water to 80% of the urban population by 2015; access to adequate sanitation should be increased to 68% of the urban population by 2015.

The Acting Permanent Secretary stated that Zambia had one of the highest urban populations in sub-Saharan Africa with 34.5% of the total country population living in the urban areas. The rate of urbanisation was unprecedented and had, therefore, exceeded the rate of infrastructure development and service provision. The Government introduced water sector reforms through the Ministry of Local Government and Housing which has been developing policies and mobilising resources to enable local authorities and commercial water utilities improve service provision.

There was no overall water supply and sanitation programme and as such a number of independent projects were being implemented with support from various cooperating partners and the Government. The Ministry, therefore, initiated the development of the National Urban Water Supply and Sanitation Programme (NUWSSP) to be implemented during the Fifth National Development Plan (FNDP) and Vision 2030.

The Permanent Secretary informed your Committee that when the utility companies were formed, they took on badly deteriorated infrastructure which was in dire need of rehabilitation. However, the utility companies were created without capital for rehabilitation. Their first form of funding was through grants and, in some cases, loans. Since their formation, not a single commercial utility had posted a profit and as a result could not repay their loans. He explained that a situation needed to be reached where the tariff regime was cost reflective, but this was a gradual process which would take a long time.

Submission from the Director, National Water and Sanitation Council (NWASCO)

7. The NWASCO Director informed your Committee that in order to fulfil its mandate as a regulator NWASCO, since 2001, as per the provisions of *Water Supply and Sanitation Act No. 28 of 1997*, has been publishing an annual Urban and Peri-Urban Water Supply and Sanitation Sector Report on the provision of water supply and sanitation in Zambia. This report was meant to inform the Government, stakeholders and the general public on the performance of the sector. The report, among other things, provided information on various selected performance indicators which were also used to compare performance among water providers.

According to the annual sector reports, the water sector performance has shown positive trends. However, the poor state of infrastructure that required massive investment has impacted negatively on the performance of the sector. An increase in funding towards infrastructure development and rehabilitation in the sector would improve service delivery. The progress towards full cost recovery tariffs would also assist in implementation of regular maintenance of infrastructure.

Your Committee was informed that the implementation and finalisation of the National Urban Water Supply and Sanitation Programme (NUWSSP) was expected to significantly improve coverage and service. Further, if power outages reduced, utility companies would be able to supply for more hours.

The Director recommended that all resources meant to improve water and sewerage service provision in the urban areas should be channelled to utilities that were mandated to provide these services. The intervention in the sector at times has been spread through a number of institutions such as the Ministry of Health and Ministry of Education. This has led to exaggerated funding into the water sector. However, the effect of these resources has not made any meaningful impact at the national level and has shown unsustainable improvements.

The Director made further submissions as outlined below.

- i) The reduction of unaccounted for water (UFW) to acceptable levels of 25% requires major investments. NWASCO has taken the issue of high UFW very serious and, hence, tariff approvals took into account this aspect. It was also important to note that UFW of 25% for water companies was not easy to achieve and not feasible with the existing state of infrastructure.

- ii) Sensitisation programmes to curb illegal connections, vandalism and improve preservation of water in the community would go a long way. There was need to encourage utilities to set up efforts in this regard. However, law enforcement organs needed to assist water utilities as they carried out sensitisation activities by responding to identified vandalism.
- iii) Although water utilities carried out operation and maintenance of the water infrastructure, major replacements and rehabilitation would depend on Government funding since existing tariffs were not able to cover major capital projects.
- iv) The issue of collection efficiency was one of the key success factors in the provision of water supply and sanitation and water utilities needed to enforce a rigorous debt management system. The Government could assist water utilities by being current with their bill payment obligations.

Audit Questions

8. Based on the objectives, the audit questions were formulated as outlined below.

- a) *Water Availability*
 - Is water available for a minimum of sixteen hours per day?
- b) *Access to Water*
 - Is 80% of the population accessing water in the jurisdiction of the water utility company?
- c) *Unaccounted for Water (UFW):* This was the difference between the quantities of water distributed to the consumers and the quantities received and consumed. The NWASCO standard pegged the acceptable level of UFW at less than 25%.
 - Is the water wastage limited to 25% or less?
 - What measures have been put in place to minimise wastage of water?
- d) *Inappropriate Technology*
 - Is there routine maintenance of water distribution infrastructure?
 - Have the water utility companies procured appropriate water distribution equipment?

The audit also included a review of the debt collection efficiency of the water utilities. The NWASCO Sector Reports set the efficiency standard at not less 85%. However, at the time of the audit it was observed that overall collection levels were below the standard and range between 68% to 74% in the 2003/2004 and 2004/2005 Sector Reports.

Lusaka Water and Sewerage Company (LWSC)

a) Water Availability

9. During audit, the water supply to some areas in Lusaka was erratic while in other areas there was heavy rationing. The most affected areas included Chelstone, Avondale and Matero. This was attributed to massive leakages, bursts and rampant vandalism and also to some reservoirs not being serviced or maintained.

In response to the audit query, the Managing Director, LWSC, stated that, the status that was reported in the Auditor-General's Report was as a result of the reasons outlined below.

- i) Old and dilapidated infrastructure: Most of the infrastructure in Lusaka, including about 53% of the pipes, was more than thirty years old, meaning that the infrastructure was beyond its useful life. This invariably leads to:
 - a. increased water loss;
 - b. reduced carrying capacity of the pipes; and
 - c. increased operation and maintenance costs.
- ii) Low water production capacity compared to demand.
- iii) Low investment in infrastructure renewal and expansion: This was the major reason for poor service delivery in the water sector. Even though demand for water and sanitation services has been increasing over the years, there has been no matching investment in infrastructure renewal and expansion. For Lusaka, the last major investment funds availed for infrastructure rehabilitation was in 1988, when the Government borrowed money from the African Development Bank and African Development Fund amounting to US\$ 35 million.

In 2009, water supply hours averaged eighteen hours. LWSC had endeavoured to improve supply through limited rehabilitation and expansion of production capacity. This has, however, been limited because of lack of investment funds.

Despite these limitations, some progress has been achieved in areas such as New Avondale, Matero, Hillview and some parts of Kamwala.

b) Water Access

During the audit, water access in Lusaka was at 48%.

The Managing Director, in response to the query, stated that the according to the National Water Supply and Sanitation Council (NWASCO) Urban and Peri-urban Water and Sanitation Sector Report 2006/2007, water coverage for Lusaka was recorded at 64% and in the 2008/2009 report it was said to be 68%.

He further reported that about 60 to 70% of the population in Lusaka resided in the peri-urban areas of the city. Most of these areas came up as unplanned settlements over the years and some had since been recognised as formal settlements. Service provision to these settlements was particularly challenging due to the following reasons:

- i) unplanned nature of peri-urban settlements in Lusaka;
- ii) rapid expansion of the city; and
- iii) limited investment in infrastructure development especially in the peri-urban areas.

c) Unaccounted For Water (UFW)

At the time of the audit, the UFW for LWSC stood at 56%.

In his response, the Managing Director stated that the major reasons for the high UFW levels recorded in Lusaka were:

- i) lack of appropriate and adequate measuring facilities to quantify production and sales volumes at most production sites, furthermore only 50% of the LWSC water customers were metered; thus the levels of UFW indicated were merely indicative figures; and
- ii) most of the LWSC infrastructure was old and dilapidated, leading to a lot of underground leakages.

In a bid to reduce UFW, the utility has procured a total of 30,000 consumer meters and these were being installed. It was envisaged that on completion, 80% of the water customers in Lusaka would be metered. In addition about 200 bulk meters have been procured and installation was in progress.

LWSC has also created a leakage control unit under its technical services department. New leak detection equipment has been procured for the unit. In addition, the Company has introduced asset management in the organisation to ensure comprehensive asset condition monitoring, maintenance and rehabilitation/ replacement planning.

d) Inappropriate Technology

During the audit, it was discovered that the technology in Lusaka was old and unable to meet the demand.

The Managing Director reported that the water supply and sewerage infrastructure was generally old dating back to the early 50's. Other infrastructure such as water reservoirs was equally old. This posed a serious challenge to service provision.

It was envisaged that as LWSC continued to implement its Prioritised Capital Investment Program (PCIP), most of the old infrastructure would be renewed and capacity expanded.

e) Debt Management

The Managing Director reported that Government ministries and related institutions accounted for about 30% of LWSC's annual revenue.

The Company usually faces challenges achieving the sector target collection efficiency because Government institutions were not meeting their payment obligations.

In order to improve overall debt management, the Company had formulated a comprehensive debt management program which included:

- engaging the Government at different levels to ensure that bills were settled on time; though there had been some notable improvement in the level payments over the period, there was still need to ensure timely settlement, especially, from Zambia Police, Zambia Army, schools and Ministry of Health;
- engaging services of external debt collectors to pursue certain delinquent accounts;
- formation of a strategic debt reduction team tasked with the responsibility of strict follow-up of all accounts with outstanding debt; and
- installation of prepaid water meters as a long term solution to debt collection. This was being done on a pilot basis in Libala Township. It was envisaged that the Company's business model would be transformed from a post paid to pre paid system over the next four years.

Eastern Water and Sewerage Company

a) Unaccounted For Water (UFW) of 29%

10. Your Committee was informed that the status reported in the Auditor-General's Report was mainly due to the fact that Chipata was one of the few towns in Zambia that had maintained 100% metering. As a result, it was able to achieve 29% UFW which was exceptionally low compared to the Zambian average.

With the adoption of the other towns of Eastern Province, which were not metered, the implementation of the German funded Urban Water Supply Project for Eastern Province covered the component of 100% metering which would address the issue of UFW in these towns. EWSC would commence bulk metering starting with Chipata. So far twelve bulk meters have been procured, and two that had been purchased earlier were being installed.

EWSC would strive to improve the efficiency of its water and sanitation services through:

- reduction of leakages
- procurement of leak detection equipment and to put in place proactive leak detection programmes;
- zoning all water distribution areas;
- installation of pressure reducing valves in all zone areas;
- prompt response to pipe bursts and leaks;
- reduction of wastages;
- monitoring fire hydrant usage;
- prompt action on damaged pipes;
- ensuring that all customers were metered and replace all damaged/old meters; and
- stopping the distribution of water for free but instead introduce bouser water sales.

b) Inappropriate Technology

Your Committee was informed that Chipata has technology that had outlived its life span. None of this infrastructure has been rehabilitated since installation in the early 1970s.

EWSC has developed a policy to reserve 2.5% of recurrent revenues to upgrading of technology and infrastructure as an in-house strategy. A number of water improvement grants have been received from Ministry of Local Government and Housing annually and these have been used to improve water supply and sanitation infrastructure in the district towns.

Further, EWSC has benefited from kiosk technologies to service water customers in the peri-urban areas through the Devolution Trust Fund (DTF). The Company was a recipient of K1billion which would finance eight additional kiosks expected to reach 2,000 households.

c) Debts and Challenges

Your Committee was informed that EWSC was owed K4.5 billion as at 31st December, 2009. Of this, K2.5 billion was owed by Government departments and K2 billion by private customers. Out of the K2.5 billion owed by Government, Chipata Municipal Council owed K1 billion.

Attempts to collect these debts have proved futile, and in some cases has been viewed as interference in the operations of institutions such as Zambia Prison Services who owed K 254 million. The last payment received from Government was K568 million in October, 2009 and was for Zambia Police Force, Zambia Army and Zambia National Service. Disconnection of Government institutions attracted unwarranted calls for immediate reconnections without any payments made.

The Managing Director informed your Committee that payments from non Government customers has primarily been the revenue driver for Company operations.

Nkana Water and Sewerage Company

a) Water Availability

11. Your Committee learnt that at the time of the audit, the distribution system was operating satisfactorily as the system has been replaced during the period under review. However, it was observed that Chimwemwe Distribution Centre was only receiving 6,800 to 8,000 against the required amount of 11000 cubic meters per day.

In responding to the query, the Managing Director, Nkana Water and Sewerage Company (NWSC) informed your Committee that the Company had sourced funding from the Republic of China in 2007, through the Government in form of a grant to rehabilitate the pipe network and install 8,100 water meters in Chimwemwe and Luangwa townships.

Further, NWSC had instituted a leak detection unit that monitored and ensured the repair of any leaking at the pumping water main. Arising from the above efforts there had been notable improvements in hours of supply in Chimwemwe to eighteen hours per day.

b) Unaccounted for Water (UFW)

Your Committee learnt that physical verification at the time of the audit revealed that UFW stood at 45%.

The Audit Report stated that the high UFW was due to pipe bursts and leakages from the old pipes, illegal connections, lack of bulk flow meters and underground detector machines. It was also due to lack of detection maintenance programs, lack of household meters and vandalism.

In response to the query, the Managing Director informed your Committee that, since the time of audit, the Company has made efforts in the following areas:

- replacing of defective ultra sonic flow meters with bulk mechanical meters on all production lines at one of its main water treatment plant at Bulangililo;
- establishing a leak detection unit dedicated to the management of leaks;
- raising the metering ratio from 40% to 58%;
- replacing aged water pipes; and
- embarking on community sensitisation programmes to help curb vandalism through radio programmes.

Consequently, the efforts have helped reduce the level of UFW from 45% to 40%. Further the Company has sourced funding from the African Development Bank to rehabilitate the water and sewerage infrastructure and

it was hoped that this would help to reduce the UFW down the NWASCO benchmark of 25%.

c) Inappropriate Technology

Your Committee was informed that at the time of audit, although the facilities has been recently rehabilitated and were of modern technology, one of the reservoirs at the Kwacha Distribution Centre was submerging and has cracks around it.

In response to the query, your Committee was informed that the concrete reservoir referred to was earmarked for demolishing and not for rehabilitation under an African Development Bank (ADB) funded project. The reservoir was being used to store water supplied to Kalulushi and would be put out of operation once the Kalulushi water supply scheme was operational in 2011, under the ADB project.

d) Debt Management

As regard debt management, the Managing Director informed your Committee that Government institutions and other customers who were not paying their bills has caused the poor collection efficiency. As a result, the Company was unable to meet consumer demands of day to day water distribution operations and service delivery.

Overall collection efficiency at the time of audit was 78%. Collection in the low cost areas averaged below 50%. This was mainly due to historical settings which has resulted into communities' unwillingness to pay and poor water supply in most of these areas.

The collection efficiency has increased to 83%, although Government institutions have continued to be inconsistent in the payment of water bills. This has greatly contributed to the Company's low liquidity position.

The Company was owed K6 billion by Government departments and ministries which was placing a considerable strain on Company operations.

Previously, payments to commercial utility companies were all made by the Ministry of Finance and National Planning and during that time the amount owed by Government was relatively low. Since Government ministries and departments have assumed the responsibility of meeting their own bills, money owed by the Government has risen steadily because inconsistency in payments.

Your Committee was informed that Nkana Water and Sewerage Company made a project proposal to overhaul the obsolete and dilapidated infrastructure and improve delivery of water supply and sanitation service to its water customers in Kitwe, Kalulushi and Chambishi. This culminated in the successful financing by the African Development Bank with a loan amounting to US\$ 57million for infrastructure expansion and rehabilitation. The rehabilitation project was commencing in 2010 and would end in 2012.

Lukanga Water and Sewerage Company

i) Water Availability

12. At the time of the audit, the water supply to consumers differed in hours and some areas had no water. Water supply ranged between two to six hours and nineteen hours. Documents reviewed revealed that there were regular pipe bursts.

In response, the Vice Board Chairperson for Lukanga Water and Sewerage Company (LuWSC) responded that this scenario had changed with the rehabilitation and expansion works by the ADB/GRZ Funded Eight Centres Project. As part of the Project, new machinery and state of the art technology was installed. This has improved the distribution of water and sanitation.

LuWSC has since achieved twenty-four hours supply in some parts of Kabwe. The utility launched the Bwacha Ngungu Chimanmani Water Project dubbed BNC 2010 in October, 2009, whose objective was to ensure that all the 2,500 houses in the BNC area has water. Your Committee was informed that the Company would be able to cover all houses by the end of March, 2010.

The Company has achieved the required eight hours supply in all peri-urban area and has also rehabilitated the major water works in Kabwe and part of the network.

The Vice Board Chairperson submitted that the boreholes in Makululu were being rehabilitated by Copperbelt Environmental Project (CEP) and the project would be completed by March 2010. This included rehabilitation of the old main network to all lead affected and peri-urban areas.

ii) Inappropriate Technology

During the audit, it was discovered that technology in Kabwe was obsolete as it had been in existence since the 1950s. It was also observed that of the three booster pumps, only one was operation.

In his response to your Committee, the Vice Board Chairperson stated that:

- (a) rehabilitation works has been done to replace the obsolete, inappropriate and inadequate machinery with new and state of the art technology; and
- (b) the number of machinery had been increased and as such a balance has been achieved between demand and supply. This has led to attaining high levels of service supply: twenty-four hours for Kapiri Mposhi, Kabwe (except Ngungu area), Chibombo and Chisamba and the eight hours maximum required for all peri-urban areas.

iii) Debt Management

The Company managed to collect close to 90% of Government debt as at August, 2009, mainly from security institutions. These included Zambia Army, Zambia National Service, Zambia Air Force, Zambia Prisons Services and Zambia Police service. However, Ministry of Education, Ministry of Health, Ministry of Agriculture and Co-operatives and Ministry of Local Government and Housing still owed large amounts.

The domestic debt constituted 70% of all the Company's debt. It has been difficult to collect this fully mainly because of the following reasons:

- (a) change of culture from free water has not been easily accepted;
- (b) high bills taken over from the councils' previous regime; and
- (c) shrinking economy of Kabwe (which constituted 72% of the Company's debt) arising from the closure of main industries which included Zambia Railways Limited, Zambia Consolidated Copper Mines, Zambia China Mulungushi Textiles and Cooperative Movement. This left Government as main potential water customer.

In December, 2009, the Domestic Debt Project was launched which was aimed at dismantling the domestic debt within six months. Since then, the debt stood at K4.6 million for domestic, K600 million for commercial and K300 million for Government as at November, 2009.

Kafubu Water and Sewerage Company

a) Water Availability

13. At the time of the audit, it was learnt that water distribution varied from peri-urban to high cost. Hours of supply ranged from zero to twenty-four hours. This was mainly attributed to massive leakages, bursts, rampant vandalism and some reservoirs that were not being serviced or maintained.

In responding to the query, the Managing Director, Kafubu Water and Sewerage Company (KWSC), stated that average hours of supply were as follows:

- Upper Ndeke six hours
- Lower Mushili twelve hours
- Upper Mushili six hours
- Lower Chifubu twelve hours
- Upper Chifubu six hours

The problems of interrupted water supply were largely due to the poor state of network infrastructure as it had not undergone rehabilitation since installation, averaging thirty-five to fifty years ago. Furthermore, the increase in population over the years, has unduly stressed the network infrastructure. Since inception of the Company in 2000, no significant

capital investment has been made. However, proposals have been formulated and forwarded to potential donors for possible support.

b) Unaccounted for Water (UFW)

At the time of the audit, the UFW in Ndola stood at 57%.

The Kafubu Water Managing Director informed your Committee that unaccounted for water could only be reduced to acceptable levels when improvements were made to the network infrastructure.

One key water loss reduction strategy requiring a much lower capital outlay compared to pipe network replacement was metering. KWSC has installed over 22,000 meters which covered about half the total customer base. The resultant effect has been increased hours of supply to the metered areas and a corresponding increase in revenue. The Company intended to fully meter all its customers by 2012.

c) Inappropriate Technology

During the audit, it was discovered that although modern technology was in place with a capacity of 97 000 cubic metres, the company operated at less than 30% capacity due to high water losses and wastage in the distribution network and customer premises.

The Managing Director, in responding to the query, stated that the existing technology was generally appropriate for Kafubu's operations. However, the challenge had more to do with its low operational efficiency due to its poor condition. Most of the mechanical units and components would need replacement and/ or refurbishment in order to restore the plant to their original design capacity.

d) Debt Management

Debt management continued to pose one of the largest challenges facing Kafubu Water and Sewerage Company Limited. Collection efficiency per category of customer was as follows:

Government	35%;
commercial	92%;
high cost	93%;
medium cost	50%;
low cost	35%; and
peri-urban	95% due to the fact that water was accessed from fully metered kiosks.

Mulonga Water and Sewerage Company

a) Water Availability

14. During the audit, it was discovered that the hours of supply for peri-urban to high cost areas from zero to twenty-four hours. The minimum standard hours of supply were only being met in high cost areas. Certain areas received fifteen to seventeen hours of supply, while there was no water supply in Chiwempala and Chikola B. This was attributed to the dilapidated water distribution network and infrastructure.

The Managing Director, in his response to your Committee, stated that the situation as recorded was due to the collapsed water network. The collapse caused by blockages in pipes as a result of vandalism of the network by the residents.

In areas which had fifteen to seventeen hours of supply, demand had outstripped supply since no major investment had been undertaken at the water works to increase capacity, since the 1970's. This was made worse by leaks in the distribution system which rapidly depleted water stocks.

b) Unaccounted for Water

During the audit, the UFW for Mulonga Water and Sewerage Company stood at 61%.

The Managing Director, in his response, informed your Committee that the general state of the water distribution infrastructure was poor due to age. No new meaningful investment has been undertaken on the network.

For some parts of Chiwempala, 40% of the network was renewed with the aid of Devolution Trust Fund, although most of the distribution pipes required attention.

UFW was down to 42% overall and targeted to reduce to 32% by the end of 2010, depending on inflow of financing for network repairs. The metering ratio had grown to over 45% and was estimated to rise to around 60% by the end of 2010.

c) Inappropriate Technology

At the time of audit, it was discovered that although appropriate technology was in place in Chingola, it had outlived its lifespan.

The Managing Director, in response, informed your Committee that Mulonga Water scouting for financiers to partner with in order to undertake major capital works to redress the situation.

d) Debt Management

The Managing Director submitted that the debtors' position for Mulonga as at 31 March, 2006, was K18 billion gross and K4.7 billion net. The bulk of this was owed by individual water customers from low cost

areas where customer willingness to pay continued to be poor.

The overall collection ratio stood at 89% (as per NWASCO Sector Report 2008/09). Sensitisation measures have continued to be made in low cost areas where there was poor customer willingness to pay.

Committee's Observations and Recommendations

15. After receiving submissions from audited commercial utilities, it is apparent to your Committee that the problems plaguing these companies are of a similar nature. Your Committee, therefore, wishes to make observations and recommendations relating to all the audited water utilities.

Your Committee observes that:

- i) commercial water utilities inherited a lot of problems at their inception including run down infrastructure and these utilities have not been adequately capitalised to deal with these problems;
- ii) there are huge amounts of money owed to water utilities and it is apparent that the largest amounts are owed by Government institutions;
- iii) water utilities are failing to meet demand and satisfy customer needs; and there appears to be little, if any expansion of water networks being carried out by any of the water utilities; and
- iv) there appears to be lack of cooperation between water utilities and local authorities regarding opening up of new residential areas and provision of water.

Arising from the above, your Committee wishes to make the recommendations outlined below.

- i) For the commercial utilities to reach a status where they are viable and able to provide efficient service delivery, they require proper financing and reliable revenue streams. As long as this does not happen, the utilities will continue to face the same problems that they have been facing since their formation.

Your Committee, therefore, strongly urges the Government to find a way of dismantling the huge debts that various Government departments and ministries owe these water utilities. It is highly unacceptable that the biggest debt should be owed by the Government.

- ii) Your Committee urges water utilities and the Government to ensure that citizens are sensitised on the need to pay for services. Utility companies must enforce a rigorous debt management system by ensuring that all outstanding accounts with consumers were cleared in order to improve the liquidity position. Further, a new culture needs to be inculcated in the people of Zambia so that they understand the need to pay for water. Your Committee, however, wishes to caution that payment of water should be matched with

efficient service delivery. NWASCO, nevertheless, needs to ensure that tariffs are not restrictive.

- iii) Your Committee, in addition, advise that there is need for sensitisation of officers who use water that is paid for by the Government. Your Committee is of the view that part of the reason for the huge Government debt is the poor water use practice that exists in Government institutions and housing areas. Taps are left to run unattended for long hours while no attempt is made to repair leaking taps. Apart from this, there appears to be a booming vegetable industry in these areas through the use of what is perceived to be 'free' water. Your Committee urge those responsible that this trend is reversed through mass sensitisation and possible punitive action against offenders.
- iv) water utilities must carry out sensitisation programmes to curb illegal connections, vandalism and improve preservation of water in the communities.
- v) NWASCO and the various water utilities companies need to work out mechanisms for reducing the levels of unaccounted for water to the acceptable sector benchmark of less than 25%. Further, there is need for all relevant stakeholders to devise a plan to maintain and replace the old and dilapidated infrastructure for water distribution.
- vi) Your Committee urge water utilities to put concerted efforts into achieving 100% metering. The prevailing situation where people are paying for water at a fixed charge, even when they are not receiving it, is highly unacceptable.
- vii) Your Committee urge local authorities to ensure that they co-ordinate closely with water utility companies and other service providers in the development and planning for growth of towns. The situation that is prevailing in the country where new areas are developing in a haphazard manner without any support services is highly unacceptable and should be discontinued.

Tour Report

16. Arising from deliberations on the Report of the Auditor-General on the Provision of Water in Zambia, your Committee undertook tours to Mopani Copper Mines (MCM) and Mulonga Water and Sewerage Company (MWSC) in Mufulira to, among other things, gain insight into the supply of raw water from MCM to MWSC.

Tour of Mopani Copper Mine Mufulira Plant

Your Committee undertook a tour of the Mopani Copper Mines Mufulira Plant and was accompanied by officers from the Office of the Auditor-General. The Managing Director and other senior management officials guided your Committee on the tour.

Your Committee learnt that Mufulira's water supply was from three sources: the southern region was supplied from MWSC Kafue River pump and treatment stations; the northern region was supplied from MWSC Mufulira Stream pump station; and water was also received from MCM underground water as an offshoot of mining operations. The underground water was used to supplement supply because water from the Mufulira stream water was not enough.

Your Committee was informed that as a control against contamination, two pH (Unit used to measure acidity) monitoring meters had been installed: one on the domestic water suction line at 430 metre level pump chamber in the mine and a second one at the Mulonga water reservoir discharge point. The 430 metre level pump chamber and Mulonga Water treatment plant personnel were always in constant touch and the two pH meters were checked on a daily basis and calibrated monthly for accuracy.

Your Committee learnt that MCM had proposed the development of a project to abstract raw water from the Kafue River so as to install new raw water supply for use in the mine plant. They were informed that MCM would need to construct a pumping station at the Kafue River near MWSC raw water intake site; lay a steel pipeline from Kafue River to Mopani plant site of approximately 12 km; construct a booster pump house; build a new pump station next to existing MWSC station at Kafue facility; and build a new electricity substation for tapping power from the ZESCO high voltage lines supplying MWSC.

Your Committee was informed that the project was for raw water only and the domestic water supply from MWSC would not be affected. MWSC would continue to supply Mopani and the community.

Your Committee was also informed that the Mufulira Municipal Council has already granted approval for the pipeline. An application had been submitted to the Water Board and after the news media advertisement on 7th August 2009, no objections had been received from the Water Board within the stipulated period of thirty days. The Water Board was yet to be constituted before a final decision could be made.

It was anticipated that as part of the project, the 6,000 cubic metres of water per day that MCM required from MWSC would be diverted to at least 15,000 households for consumption per day.



Members of the Committee with other members of the entourage at Mopani

Tour of Mulonga Water and Sewerage Company

Your Committee toured Mulonga Water and Sewerage in Mufulira and was accompanied by officers from the Office of the Auditor-General and was received by the Company's Board Chairman, Managing Director and other senior management officials. The Mufulira Municipal Council Town Clerk was also part of the entourage.

Your Committee was informed that Mulonga Water and Sewerage Company was a well established Company which despite the absence of major donor financing for rehabilitation of equipment, was doing its best to provide favourable services to its clients. The Company has an efficient and well trained labour force and an organised peri-urban water supply unit. Mulonga also has an active water customer liaison programme for sensitising the general public against vandalism, illegal connections and the need to settle the water bills.

Your Committee learnt that the major challenge faced by MWSC was the poor state of infrastructure that the Company inherited and had continued to work with. Other challenges included:

- i) poor water quality;
- ii) cost of water treatment chemicals;
- iii) vandalism to infrastructure;
- iv) vulnerabilities to copper prices; and
- v) mushrooming of illegal structures which were sometimes built on top of the Company's infrastructure.

Your Committee was informed that Mulonga required in excess of K500 billion. Committee Members were further informed that Mulonga was alive to the fact that the Company could not continue to rely on the water supply that was being provided by Mopani Copper Mines. As a result of this, the

Company was in the process of mobilising US\$8million in order to be able to run a line directly from the Kafue River to its Chibolya Treatment Plant.

The Managing Director stated that MWSC did not have a donor working with it and was, therefore, scouting for financiers to partner with in order to undertake major capital works.

As part of the tour, your Committee visited the Kafue Raw Water Intake Plant.



Kafue Raw Water Intake



*Committee Chairperson and Mulonga management
at Kafue Raw Water Intake*

Committee's Observations and Recommendations

- i) Your Committee is pleased to note the efforts that have been put in place to prevent contamination of water as a result of in-situ leaching in the future as was the case in 2007.

Your Committee cautions Mopani Copper Mines and Mulonga Water and Sewerage Company to ensure that these measures work efficiently to prevent any loss of life. Your Committee urges the

Government through the ECZ to ensure close monitoring of the raw water supply.

- ii) Your Committee is hopeful that the proposed raw water supply project at Mopani will have the anticipated benefits to the community and will not result in any loss in the much needed revenue for Mulonga Water and Sewerage Company. Your Committee urges the Ministry of Local Government and Housing and other relevant authorities to ensure that such a situation does not occur.
- iii) Your Committee is pleased to note the efforts that are being put in place by Mulonga Water and Sewerage Company, in spite of the problems that the utility inherited at its formation.

Your Committee urges the Government and relevant local authorities to put concerted efforts in assisting the utility to source resources to enable it carry out its projects.

PART II

CONSIDERATION OF THE REPORT OF THE AUDITOR-GENERAL ON SOLID WASTE MANAGEMENT IN ZAMBIA

17. The Office of the Auditor-General conducted an environmental audit between January and June, 2007. The objective of the audit was to assess the effectiveness of waste management in Zambia with specific reference to the Environmental Council of Zambia (ECZ) and local authorities.

The motivation for conducting the audit was based on complaints by the public about environmental degradation in the country and frequent outbreaks of diseases such as dysentery and cholera.

The audit covered Lusaka City Council, Ndola City Council, Kitwe City Council, Kabwe Municipal Council and Solwezi Municipal Council. The Report stated that out of the five local authorities investigated, four were violating set conditions. However, no evidence was produced by ECZ to indicate that such violators were subjected to follow-ups or considered for sanctions.

Audit Questions

18. The audit question are set out below.
- i) To what extent is the goal of substantially minimising generation of waste being achieved?
 - ii) To what extent is the goal of maximising the efficiency in the collection of waste being achieved?

- iii) Are compliance monitoring activities being conducted in a coordinated and planned manner by the Environmental Council of Zambia?
- iv) Have the key players developed and adopted environmentally sound treatment and disposal methods and practices?
- v) Are relevant results of the work to manage solid waste being reported and have these reports led to any corrective action?

Submission from the Permanent Secretary Ministry of Tourism, Environment and Natural Resources

19. The Permanent Secretary informed your Committee that according to the Audit Report, Zambia had passed a law on environmental protection and pollution control, but lacked a specific policy on environmental waste management. The Report stated that issues of waste management were contained in other isolated pieces of legislation, which had not been revised to take into account the new developments in environmental management and protection.

She explained that the Environmental Council of Zambia (ECZ) was established as an autonomous body by the *Environmental Protection and Pollution Control Act*, No. 12 of 1990 and was mandated to implement the provisions of the Act which provided for management of waste and provided for the collection, transportation and safe disposal of solid wastes.

Further, the Ministry saw the need to prepare a policy that would guide the coordination of environmental and natural resources management between the Ministry and its stakeholder and in 2007, approved the National Policy on the environment. The Policy provides a framework for coordinating other policies and legislation that dealt with the environment, including waste management. Strategies related to waste management included:

- a) enforcing existing policies and laws through strengthening institutional capacity and mechanisms for compliance;
- b) encouraging the adoption of systems that sorted industrial, clinical, domestic and other waste at sources in order to facilitate recycling of materials wherever possible;
- c) encouraging privatisation of waste management;
- d) ensuring that all hospitals, clinics, public places and residential areas had appropriate sanitation and waste effluent disposal systems; and
- e) strengthening inspection of work environments and improving knowledge on occupational hazards and safety measures.

The Policy also provides for the review of legislation and establishment of a comprehensive legal framework for an integrated approach to environmental care. As a result, the Ministry have submitted a draft revised *Environmental Protection and Pollution Control Act*, entitled the Environmental Management

Bill to the Ministry of Justice, for legal drafting. As the name entailed, it was hoped that the law that would emanate from the Bill would focus on management of the environment and a sound waste management system.

Your Committee was informed that despite the efforts that Government had put in place to deal with environmental issues in general, and solid waste management in particular, the ECZ which was charged with the responsibility of implementing policy as well as enforcing legislation, had faced a number of challenges in doing so. The grant to ECZ from the Government had not been adequate for many years and as a result, ECZ had not been effective in monitoring compliance of the law and in prosecuting erring parties.

Submission from the Director, Environmental Council of Zambia

20. Your Committee was informed that the Environmental Council of Zambia (ECZ) established under the *Environmental Protection and Pollution Control Act* (EPPCA) No. 12 of 1990, was mandated to regulate environmental management through a licensing system which stipulates the conditions for such licenses. These facilities include industries, mines, local authorities and water utilities. Licenses under the Act relating to the environment include those for air emissions, effluent discharge, waste management, pesticides and toxic substances, and ozone depleting substances.

To enforce these licensed activities, ECZ carried out compliance inspection and monitoring programs. Environmental monitoring was critical to achieving sustainable development. The positive economic growth in recent years, particularly the growth in the mining sector, had led to increased activities which had an impact on land, air and water. Due to limited resources, ECZ was not able to adequately carry out monitoring activities, especially that it had no presence in most districts.

Your Committee learnt that over the years, the management of waste had not improved much in most of the urban cities of Zambia and had manifested itself in the annual outbreaks of disease such as cholera and dysentery. Inappropriate disposal of waste had also been reflected in the pollution of water resources, air, soil or land contamination, proliferation of pests and vermin, and the loss of aesthetic beauty.

The key challenges identified as regards waste are:

- lack of political will and commitment among local authorities to manage waste;
- improper citing of disposal sites; and
- inadequate infrastructure and equipment for the management of waste.

Local authorities, who are mandated to manage waste, have inadequate capacity in terms of human resource numbers or skills, infrastructure and equipment to effectively undertake this task.

The ECZ Director informed your Committee that in addition to the EPPCA, Zambia had in 2007, developed a National Policy on Environment (NPE) which at the time of the audit was in draft form. Previously, in 1985 and 1994, respectively, the Government issued strategic documents in the form of National Conservation Strategy and National Environmental Action Plan which adequately articulated issues of waste management in Zambia.

Further, the EPPCA provided for the regulation and management of waste. To implement these provisions, Government promulgated two statutory instruments on waste management under the EPPCA-

- i) Waste Management Regulations, Statutory Instrument No. 71 of 1993; and
- ii) Hazardous Waste Management Regulations, Statutory Instrument No. 125 of 2001.

In 2003, ECZ, in consultation with various stakeholders, developed the National Waste Management Strategy that provided a national framework for managing waste through a waste management hierarchy. The strategy also identified other wastes requiring urgent attention as outlined below.

- *Packaging waste:* The management of packaging waste has become a problem and, therefore, the ECZ has developed a standard for carrier bags and has submitted to the Ministry of Tourism, Environment and Natural Resources a draft regulation to manage plastic carrier bags, non returnable plastic, cartons, and glass bottles.
- *Waste oil:* A standard on the management of waste oil has been developed in conjunction with industry and the Zambia Bureau of Standards and it was envisaged that in 2010, it would become a voluntary standard.
- *Electronic waste:* A Technical Working Group would be constituted in 2010, to develop guidelines on the management of electronic waste in Zambia.

The Government has realised that the existing legislative framework was inadequate to address the ever changing challenges in environmental management. Consequently, EPPCA and its subsidiary legislation were undergoing amendments. In addition to improving compliance monitoring and enforcement, the proposed legislation would introduce environmental concepts which would continue applying the “Polluter Pays Principle”.

The Director submitted that the Environmental Council of Zambia would intensify its efforts to ensure that local authorities prioritised the management of solid waste. Recognising that public awareness and stewardship in environmental management was low in the country, there would be enhanced effort from the ECZ to raise awareness in critical matters concerning environmental management.

Lusaka City Council

i) Lack of Capacity in the Collection and Transportation of Waste

21. At the time of the audit, it was found that the Council, through its Waste Management Unit (WMU), did not have adequate capacity to transport waste to the Council managed Chunga Dumpsite. The Council had, therefore, contracted five private operators, under franchise agreements, to collect waste from areas where the Council was unable to collect.

In response, the Lusaka City Council (LCC) Acting Town Clerk informed your Committee that the Council has continued to work with franchise contractors because the Council continued to have limited capacity. He explained that although the system was working well, the franchise contractors were faced with the problem of non-payment by their customers.

ii) Failure to Produce Reports

At the time of the Audit, it was reported that contrary to the *Environmental Protection and Pollution Control Act* No 12 of 1990, the LCC had failed to submit annual reports on tonnage of waste handled at dumpsite to the ECZ. It was, therefore, not possible to ascertain the tonnage of waste that was handled during the period under review.

In response, the Acting Town Clerk informed your Committee that LCC has been submitting statutory returns to the Environmental Council of Zambia and this had been the basis for licensing to operate a disposal site. However, there were lapses in submission of returns after the closure of the then disposal site in Libala South. After the closure, LCC had to operate from temporary sites prior to the development of Chunga site, with its necessary and environmental impact assessment and the construction of the sanitary landfill. The site at Chunga, which was the first engineered landfill in Zambia, was commissioned in April, 2007, and has a computerised waste documentation system which allowed for quarterly reports to be submitted to ECZ. These reports were also used as a comparison to counter check returns submitted by other licensed waste managers.

iii) Waste Disposal

At the time of the audit, it was discovered that:

- a) although the Chunga dumpsite had been fenced off, the boundary wall had collapsed in some parts, making it easy for scavengers to access the site;
- b) there were no hazard signs displayed at the entrance to the site contrary to regulations;
- c) waste at the dumpsite was not compacted to the required thickness and this caused the site to emit bad smells and precipitated the breeding of rodents, mosquitoes and other vermin; and

- d) the Council was not conducting laboratory analysis of possible contamination of the stream adjacent to the dumpsite.

In response, the Acting Town Clerk informed your Committee that the Chunga disposal site first started as a temporary disposal site after the closure of the Libala site.

At the new site, a landfill operation manual has been developed and was being utilised to manage waste and this included daily waste compaction and waste covering in intermediate layers. Compacting and spreading of waste was done on a daily basis well above the stipulated regulations. Areas away from the tipping face were covered on a daily basis.

The landfill was designed complete with liners and leachate drainage and collection mechanisms to prevent contamination of ground water sources. Further a number of monitoring boreholes had been installed to ensure that in the unlikely event of the failure of liners and drainage mechanism, contamination of ground water sources would be noticed early. LCC-WMU has been doing water sampling through the University of Zambia Environmental Engineering Laboratory.

Presence of Waste Pickers (Scavengers) Disposal Sites

The Acting Town Clerk informed your Committee that the issue of waste pickers (scavengers) was a social-economic matter. Waste pickers were a vital component in waste management recovering material such as paper, plastic and scrap metal and trading with the recycling industry, and in the process earning an income. It was not typical to Zambia alone. There were two categories of waste pickers and these were: -

- a) street waste pickers who moved around the street either buying waste materials like waste paper or scrap metal or anything of value which was then sold off to recycling or waste recovery companies; and
- b) dumpsite waste pickers who in some instances sold their materials to the street waste pickers or sold directly to recycling industries.

Positive Impacts

- Given the high levels of poverty and unemployment in Zambia, the waste pickers were able to earn a livelihood from their activities. For a large majority, waste picking was the only source of income.
- The informal sector made a significant contribution to the recovery of recyclable waste materials in the city.

Negative Impacts

- The mode of transporting waste materials to the different points of sale in the city was not good enough and contributed to littering.

- Waste pickers operated without any protective clothing and thus generally exposed themselves to various health and environmental hazards associated with waste picking.
- Waste pickers, particularly those involved in the recovery of scrap metal, travelled long distances pushing wheelbarrows or handcarts and these were heavy loads which inevitably tended to affect their health.
- There was a level of involvement of children in waste picking activities and this in itself was a form of child labour, notwithstanding that these children were contributing to the family income.

It was due to the above negative impacts of waste picking that LCC appreciated that waste picking needed to be regulated to a level where it was safe for waste pickers. One way was by establishing a material recovery facility. However, this required investment for which the Council would be looking to partner with the private sector.

Efforts were being made to regulate waste picking through newly developed guidelines for waste pickers which LCC-WMU had submitted to the Environmental Council of Zambia.

Tour of Chunga Dumpsite

Your Committee visited Chunga Dumpsite and was guided on the tour by officers from the Lusaka City Council Waste Management Unit (WMU). Your Committee was accompanied by officers from the Office of the Auditor-General and officers from the Environmental Council of Zambia.

Your Committee toured the reception area where waste was screened in terms of type, weight and origin; the workers' quarters; and the landfill.

The Head of the WMU informed your Committee that the total area of the site was twenty-four hectares. It was developed into the first engineered landfill in the country at a cost of US\$2.8 million, with aid from DANIDA.

The site was surrounded by a 4km fence, which according to the WMU, was unfortunately waste pickers often jumped over. The site received between 200 and 250 tons of waste daily. Your Committee was informed that the estimated lifespan of the dumpsite was twenty-two years. However, with the amount of waste that was received on daily basis, there was a high possibility that it would fill up much faster than was anticipated.

Your Committee was informed that one of the challenges that the WMU was facing was the laxity by staff to put on protective clothing that was issued to them. It was explained that there was need for stricter enforcement to ensure that staff adhered to laid down regulations and utilised the protective wear that was issued to them.

Your Committee was further informed that the biggest challenge that the Unit was facing was the presence of waste pickers at the dumpsite. They were informed that some waste pickers had turned the site into a permanent

home and efforts to remove them had proved futile. It was for this reason that the Unit has made proposals to incorporate them into the waste management chain, in a more environmentally friendly and health sustaining manner.



*Members of the Committee and WMU staff
at Chunga dumpsite*



A tipper truck offloading waste at the landfill



Waste pickers scavenging through the waste at the landfill



Committee Chairperson talking to waste pickers at Chunga

Ndola City Council

i) Collection and Transportation

22. Audit of the collection and transportation of waste in Ndola revealed the following:

- a) as at May, 2007, the Council did not have a valid license to transport waste as well as to operate a dumpsite;
- b) the Council did not have a documented policy on environmental and waste management issues;
- c) contrary to ECZ conditions and regulations, staff handling waste were not subjected to medical check-ups; and

- d) contrary to the regulations, the Council was using open trucks and trailers to transport waste.

In response, the Town Clerk informed your Committee as set out below.

- a) The Council had managed to pay for licenses and was up to date, and the challenges previously experienced have been overcome.
- b) A waste management policy has been formulated though it was still in draft form; It the policy would address the salient issues in environmental management. However, the Government needed to supplement this by coming up with a national policy on solid waste management especially with regard to recyclable waste. Many beverage companies had been formed and were using disposable bottles, tetra packs and sachets for packaging their products. This had a heavy bearing on the local authorities which were mandated to maintain the environment.
- c) The Council over time has been experiencing financial constraints and has, as a result, been unable to take workers for medical examination. The situation had changed and the exercise of regular medical check-ups had commenced.
- d) The solid waste equipment in use was a fleet which was donated by the Japanese Government. The four tipper trucks in use have not been provided with covers to prevent flying out of garbage, but drivers were encouraged not to over load the trucks and to should ensure that unsecure waste was placed under heavier garbage. The trucks, though not ideal, have greatly assisted the Council with garbage collection and it was comforting to mention that even the diseases caused by poor sanitation have been kept at bay.

ii) Waste Disposal

At the time of the audit, a physical inspection of the dumpsites in Ndola revealed the following:

- a) there were no hazard signs to indicate the location of the dumpsite and the sites were not fenced;
- b) there were no personnel to supervise and monitor the activities at the sites, resulting in waste being dumped haphazardly; the sites were open to scavengers who had turned them into residential places;
- c) the Council did not compact waste resulting in the dumpsite emitting a foul smell; and
- d) the Council did not undertake civic education on waste management and disposal.

In response, the Ndola City Council Town Clerk informed your Committee as set out hereunder.

- a) Efforts had been made to have signage at the dumpsite. In Twapia it had been vandalised and removed. Alternative materials were being sought for a lasting solution such as treated wooden poles and plastics posters. Following the experience in Twapia, posters were not put up in Kaloko for fear of the same result. Once a reasonable material was found, the posters would be put up.
- b) A metal boom was placed at the beginning of the access road to the Twapia site and the ground around was raised to deter trespassing in the dumpsite. This, however, did not work out for people as it did for vehicles. Planting of trees has been considered for Kaloko dumpsite after a recommendation from ECZ that this was a cheaper means of fencing which would prevent foul smells and waste flying out.
- c) Waste was not deposited in cells, but was dumped in the quarry. As a means of control a bulldozer was on site to push the waste deeper into the pit. Some amount of covering was achieved using the laterite in the pit. The major challenge faced was the non availability of an engineered landfill. Ndola has a generally high water table and leachate from the waste was likely to contaminate the under ground water. It was sincerely hoped that the Government would come to the aid of the Local Authority in terms of sourcing funds for the improvement of the waste disposal facility.
- d) The Council, through the education health unit, conducts sensitisation programmes for residents in many matters to do with health and safety of the environment, including waste management.

Kitwe City Council

i) Collection and Transportation of Solid Waste

23. An examination of records at the Council revealed during the audit that:

- a) the Council was operating without a license from the ECZ, as it had expired on 30 June, 2006 and had not been renewed as at 30 April, 2007;
- b) contrary to ECZ conditions and regulations, staff handling waste were not subjected to medical check-ups; and
- c) contrary to regulations, the Council was using open trucks and trailers to transport waste.

In responding to the audit queries, the Director of Public Health from Kitwe City Council informed your Committee that:

- a) having realised that the Council did not renew its licence to transport waste, efforts were being made to ensure that licences were obtained from ECZ in Ndola and the Council was in the process of acquiring its licence for 2010;

- b) efforts were being made by the Council to ensure that the concern on medical check-ups was addressed, as it would safeguard the health of the employees;
- c) the Council was alive to the fact that the use of open trucks and tractor trailers was against the requirements of the *Environmental Protection and Pollution Control Act*, No 12 of 1990, as such an initiative was made to introduce tents and the Council would endeavour to provide tents at all times.

ii) Waste Disposal

Inspection carried out by the environmental audit team at Uchi dumpsite revealed that:

- a) the Council has no license to operate the dumpsite;
- b) there were no hazard signs to indicate the location of the dumpsite and it was not fenced, and it was further observed that the foreman supervising works at the site had no protective clothing against hazardous waste dumped at the site;
- c) scavengers have invaded the site and were violent to the public and no effort was being made to enforce security; and
- d) contrary to regulations, waste was being burned instead of being compressed and buried under the soil.

In her response to your Committee, the Director of Public Health stated that Uchi Dumpsite was initially owned by the Zambia Consolidated Copper Mines (ZCCM). The intention was to back-fill the Uchi tailing, so that the same piece of land could be reclaimed in future. After the privatisation of ZCCM, the dumpsite was handed over by ZCCM-Investment Holdings (ZCCM-IH) to the Mine Municipal Services Company (MMS) under Nkana Water and Sewerage Company.

When MMS was phased out, the management of dumpsite was left in the hands of the Copperbelt Solid Waste Management Company (COP-WASTE), which had continued to maintain the dumpsite. The Council retained the role of giving technical guidance to COP-WASTE on the maintenance of a disposal site.

Your Committee was informed that in light of the above, it was clear that the provision of security and fencing of the dumpsite to prevent the problem of scavengers and fire, among others, was the responsibility of the Copperbelt Solid Waste Management Company.

Tour of Uchi Dumpsite

Your Committee paid a courtesy call on the Kitwe City council Deputy Mayor, after which they toured Uchi Dumpsite. They were led on tour by the Managing Director for Copperbelt Solid Waste Management Company; the Deputy Mayor and the Director of Health. Your Committee was accompanied by officers from the Office of the Auditor-General and officers from the Environmental Council of Zambia.

Your Committee learnt that the Copperbelt Solid Waste Management Company (COP-WASTE) was a wholly Zambian owned company whose shareholders were the Chililabombwe, Chingola, Kalulushi, Kitwe, Luanshya, Mufulira and Ndola Councils. Its core business was collecting, treating processing, reusing, recycling and disposing of municipal solid wastes generated by all urban population groups in an environmentally and socially satisfactory manner, using the most economical means available. Services were offered to domestic, commercial and industrial waste discharged from around the Copperbelt.

The Company provided these services to willing water customers that were able to pay.

COP-WASTE has five offices on the Copperbelt with its corporate head office in Kitwe. The Company operates the following disposal sites:

- (a) Hellen Dumpsite, Chingola;
- (b) Mushili dumpsite, Chililabombwe;
- (c) Uchi TD222, Kitwe; and
- (d) Musi Dumpsite, Luanshya.

The Company also operates the Airport Dumpsite in Mufulira which was not being used as it was awaiting to be engineered. Your Committee learnt that the Company's growth strategy was being planned geographically meaning that service coverage would be focussed from one town to another. Finances were being sought from donors and financiers.

The Managing Director outlined the challenges that the Company was facing as set out below.

- a) ***Balancing between survival and growth, and subsidisation of the poor:*** As the Company was competing against private companies, continued subsidisation without operational support from Government was untenable. Annually, COP-WASTE had been supporting low cost areas at a cost of at least K4 billion.
- b) ***Lack of enforceable regulations:*** People handled waste the way they wanted and there was no enforcement of rules. Draft regulations had been submitted to the Ministry of Local Government and Housing for review. This would reduce littering and give specific powers to councils regarding residents' responsibilities and spell out prohibitions.

- c) **Poor payments:** especially by low cost water customers. Costs of operations exceeded collections making it impossible to continue providing subsidised services.
- d) **Lack of dumpsite equipment:** Maintenance works were carried out by hiring equipment. This was very expensive considering that most of the waste was not paid for.
- e) **Inadequate capitalisation:** When COP-WASTE was formed, it began operations without any equipment and cash injection.
- f) **Political interference:** There was usually pressure by some politicians who had a tendency of discouraging people from paying for or participating in services.

Regarding the Uchi dumpsite, Your Committee was informed that it was operated as a class one (highest polluter) dumpsite and receives non-hazardous garden, domestic, commercial and industrial waste.

The site was previously operated by the Asset Holding Company – Municipal Mining services (AHC-MMS) for disposal of domestic waste mainly from former mining townships.

Approximately, 1,800 tons monthly (20,000 tons annually) were disposed at the site by: the Council (40%); private operators (20%); public (negligible); and COP-WASTE (40%). This was arrived at based on the capacities of the equipment that dumped at the site.

Your Committee was informed that one of the major challenges being faced at Uchi dumpsite was the lack of operable dozing equipment. As a result of this, the Company has not been able to adequately carry out regular dozing works at the site. Hiring equipment from private companies was often done but it has been very expensive.

The COP-WASTE Managing Director informed your Committee that the Company has purchased a new landfill compactor, through a Government grant, for use at all its dumpsites. Weekly site maintenance would in future be carried out at the Uchi.

Your Committee was informed that there was no fence at the site because a steel barrier that was previously at the site had been stolen and a subsequently installed sling had been crashed into. Erection of a fence around the site has not been done due to the site's history and difficulty of terrain. Further, the open air burning that was taking place was due to waste pickers who often light fires to ward off flies.



Uchi Tailing where the dumpsite was located



COP-WASTE Managing Director stressing a point to the Committee at Uchi

Kabwe Municipal Council

i) Collection and Transportation

24. During the audit, an examination of records maintained at the Council revealed the following:

- a) the Council has no valid license to transport waste and operated a dumpsite contrary to ECZ regulations;
- b) contrary to ECZ conditions and regulations, staff handling waste were not subjected to medical check-ups; and
- c) the Council only has one light truck which, apart from collecting waste, was also being used for administrative purposes.

In his response to your Committee, the Acting Town Clerk, Kabwe Municipal Council, stated that at the time of the audit, Kabwe Municipal Council was undergoing a lot of difficulties such as:

- limited resources to manage the activities of solid waste, and
- lack of skilled manpower, due to very poor conditions of service, the Council was not able to retain qualified personnel.

Waste was dumped outside the market because the Council had only one truck for refuse collection which made it difficult to collect from the market on daily basis. However, the situation has changed and waste was collected on a daily basis.

ii) Waste Disposal

A physical inspection of the dumpsite during the audit revealed that contrary to regulations:

- a) it was a quarrying site improvised as a dumpsite and was not well maintained, not enclosed and had no supervisors on site;
- b) there was sign post indicating the location of the site;
- c) waste from both the market and other sources was being dumped right outside the town market; and
- d) waste was being burned at the market site.

In responding to the audit queries, the Acting Town Clerk informed your Committee that at the time Mukobeko was approved as a dumpsite, the Department of Public Health had no plans regarding to how to manage the site due to lack of environmental technicians to give guidance. ECZ personnel, in 2009, gave recommendations regarding how the Council should fence off the site and advised the Council to assign people to take charge of the site and to put up sign posts.

On the issue of burning waste, Your Committee was informed that it was not the Council personnel who were involved, but waste pickers who had turned the site into a residential place.

The Acting Town Clerk stated that:

- Kabwe Municipal Council has since obtained an ECZ license;
- workers have been medically examined;
- Ministry of Local Government and Housing has provided two light trucks which were meant for the 'Make Zambia Clean and Health Campaign' and one tractor with an upper tipper trailer;
- the 'Keep Kabwe Clean Committee' has been revived and its main objective was to pursue a healthy environment in the district of Kabwe;
- the Council also has acquired sprayers and chemicals for control of vermin at the dumpsite and temporary shortage points at markets; and

- personal protective equipment has been provided for all workers involved in waste management; the Council has also managed to employ two environmental health technicians.

To enhance solid waste management in the district of Kabwe by-laws were formulated on solid waste management. A unit has been established specifically to execute activities pertaining to solid waste management. There was also the formation of community based enterprises to collect waste. By April, 2010, the Council would contract public private partners in solid waste management.

Kabwe Municipal Council was working with WASTE, a Dutch environmental management organisation, which collaborates with European co-operating partners. A number of activities have been implemented under the Integrated Support to Sustainable Urban Environment 2 (ISSUE 2) Project, but these have mostly been on capacity and knowledge building of various stakeholders.

The Council was also working with Riverine Development Association, working together with Kabwe Municipal Council and Lukanga Water Sewerage Company to implement ISSUE 2 in peri-urban areas of Makululu, Nakoli, Katondo and Kawama. The project's component on solid waste management was intended to compliment the 'Keep Kabwe Clean Campaign', in addition to improving the livelihoods of the people in these communities through creation of employment and business opportunities. Under this programme the following activities have been done:

- a base line survey was conducted in the project areas in January 2009;
- training of community animators in solid waste management;
- exchange visits to Mazabuka Municipal Council and Lusaka City Council;
- solid waste management community planning meetings;
- establishment of solid waste management unit;
- business training for community based enterprises; and
- production of sensitisation materials.

SOLWEZI MUNICIPAL COUNCIL

i) Collection and Transportation

25. During the audit, an examination of records maintained at the Council revealed the following:

- a) staff handling waste were not subjected to medical check-ups contrary to ECZ conditions and regulations; and
- b) annual reports on tonnage of waste handled at dumpsites were not submitted to ECZ by the Council.

In responding to the audit queries, the Town Clerk, Solwezi Municipal Council informed your Committee that the Solwezi Municipal Council has since employed health inspectors responsible for the collection, management and transportation of domestic waste, to a designated site situated 15km along Solwezi Mutanda Road. The Department of Engineering also has a Rural Water and Sanitation Unit in place and it has four qualified officers helping the Public Health Unit deal with issues of waste.

There was also a running contract with a private company (Wana Cleaning) responsible for collection, sorting, management and transportation of solid waste.

Clinical waste was being adequately disposed of at incinerators at the Solwezi General Hospital and Urban Clinic. However, plans were underway to construct an incinerator at the dumpsite.

- a) Medical checkups for waste handlers: staff were usually taken for medical checkups before commencing work and this was repeated once every six months.
- b) Annual Reports: the Town Clerk admitted that the Council had not been submitting reports on total tonnage of waste being handled at the dumpsite in the past due to lack of qualified personnel. The Council has employed qualified personnel, and would ensure that annual reports were submitted to the ECZ commencing 2010. However, looking at the generation rate of 11.43 tons per day, annual tonnage of waste handled at the dumpsite was about 4,160 tons per year.

ii) Waste Disposal

A physical inspection of the Solwezi dumpsite revealed the following:

- a) the Council did not have a mechanism to store waste before transporting it to the designated site; waste was thrown and heaped outside a public market, close to residential areas; the site was not enclosed and was therefore open to scavengers and the general public;
- b) the Council did not have a license to operate a dumpsite;
- c) there were no hazard signs to indicate the location of the dumpsite, and there were no employees to supervise and monitor the activities at the site resulting in waste being dumped haphazardly thereby exposing it to scavenging; and
- d) contrary to regulations, waste was being burned instead of being compressed and buried under the soil.

In responding to the audit queries, the Town Clerk informed your Committee as set below.

- a) The Council has managed to provide a tractor and trailer which was being used for transporting the waste. Areas have been designated near markets where traders dumped their waste awaiting transporting to the dumpsite. The Council was also fencing these refuse bays and was looking forward to acquiring skips into which people would be throwing their garbage.
- b) Once in a while, waste was compacted and buried under the soil using the Rural Roads Unit equipment. Although this was supposed to be done on a daily basis, the Council did not have the necessary equipment.
- c) The Council has paid for and obtained the licence from ECZ to operate the dumpsite.
- d) Hazard signs to show where the dumpsite was located have been put up and it was indicated clearly to the public that the dumpsite was out of bounds. The Council has partnered with Wana Cleaning Company, which employed workers, who were monitoring and supervising the activities at the dumpsite.
- e) Prior to the improvements which had been effected at the dumpsite, scavengers took fire to the site and burnt the waste. The scenario has since changed as the site was fenced off to protect the public and was under guard. The Council was sourcing funds for an engineered dumpsite.

Tour of Solwezi Dumpsite

Your Committee toured Solwezi Dumpsite. The tour was preceded by a courtesy call on the Provincial Minister for North Western Province who welcomed them to the Province.

Your Committee was accompanied by the Town Clerk, Solwezi Municipal Council and other council officials, officers from the Office of the Auditor-General and officers from the Environmental Council of Zambia.

Your Committee was informed that Solwezi Municipal Council was making every effort to ensure that waste taken to the site was properly managed because the Council did not yet have an engineered landfill. It was hoped that the Clean Development Mechanism Project would address the issue of the landfill.

Your Committee learnt that the Council has partnered with Wana Cleaning Company which has employed workers, who were monitoring and supervising the activities at dumpsite. The Company has come up with a project to generate compost from degradable waste. This manure was then sold to local farmers.

The Town Clerk, however, expressed disappointment that other materials, such as plastic and paper could not be recycled due to lack of a recycling plant.



Members of the Parliament Committee inspecting the Solwezi Dumpsite

Committee's Observations and Recommendations

26. The observations and recommendations made by your Committee on the various audited councils are outlined below:

Lusaka City Council

- i) Your Committee wishes to commend Lusaka City Council on the efforts being made as regards partnering with franchise contractors in the collection of waste. It urges the Council to ensure more concerted efforts are put into educating the public on the benefits of waste collection and proper waste management.
- ii) Your Committee wishes to commend the Council on the development of the first engineered landfill in Zambia at Chunga. It urges the Council to ensure that funding is sourced for improving the perimeter fencing around the dumpsite. Your Committee, further, urges the Council to ensure that hazard and safety signs are correctly displayed.
- iii) Your Committee notes the efforts that are being made by the Waste Management Unit to ensure that quarterly reports are submitted to the ECZ and urges the Unit not to relent in its work.
- iv) Your Committee notes the Council's views regarding waste pickers and the need to integrate them into the waste management system. However, your Committee wishes to express its concerns at this proposed integration. Your Committee is of the view that waste management should be the preserve of trained and well equipped people, especially considering the effects that poor waste handling can have on human health and on the environment.

Ndola City Council

- i) Your Committee is pleased to note that a site has been identified for the development of an engineered landfill and, therefore, urges the Council and all relevant stakeholders to expedite the process of developing this site.
- ii) Your Committee strongly urges the Council to ensure that once the engineered landfill is developed, all regulations pertaining to waste management should be strictly adhered to.
- iii) Your Committee finds it highly unacceptable that waste is transported through the city of Ndola without being covered and therefore, urges the Council to work out a mechanism of ensuring the proper transportation of waste.
- iv) Your Committee wishes to commend the Council on the efforts being made to educate residents on proper waste management and wish to caution that this should be a continuous exercise which should be carried out at regular intervals.

Kitwe City Council

- i) From the outset, your Committee wish to state that there appears to be a serious lack of adherence to rules and regulations that govern waste management in the Kitwe City Council. Arising from this, your Committee can safely deduce that this situation is prevailing in all Copperbelt towns where COP-WASTE is charged with the responsibility of handling waste.
- ii) Your Committee wishes to strongly urge COP-WASTE management to pull up their socks and quickly devise workable strategies improve its operations. Your Committee wonders whether the formation of COP-WASTE can be justified and if there is any need for the Company's existence because it appears to have promoted inefficiencies in the management of waste on the Copperbelt.
- iii) Your Committee wishes to state that the local authorities, who are shareholders in COP-WASTE, need to take the lead in providing waste management services to citizens. Your Committee finds it highly unacceptable that these councils have taken a back seat in providing this essential service, in spite of the fact that COP-WASTE is wholly owned by them. Your Committee is of the view that waste collection should not be the preserve of people in low density areas but should be a service that is available to all citizens regardless of where they reside.
- iv) Your Committee observes, with dismay that COP-WASTE is operating with almost no equipment for waste management and, therefore, urges the councils, as shareholders, to put concerted efforts into sourcing funds for capitalising waste management so as to improve operations at the dumpsites and improve collection efficiency.

- v) Your Committee observes that COP-WASTE does not have a billing system but instead, waste collection charges are incorporated into water bills generated by the various water utility companies on the Copperbelt. Your Committee wishes to point out that this situation needs to be reversed as quickly as possible because COP-WASTE is not providing services in certain areas where water utility companies are providing water.
- vi) Your Committee strongly urges COP-WASTE to ensure close scrutiny and accountability of fees being collected at the dumpsites in light of the fact that charges are based on approximate figures.

Kabwe Municipal Council

- i) Your Committee is pleased to note that the Council has identified a site at Mukobeko. However, there is urgent need for an engineered site to be developed in the municipality. Once the engineered landfill is developed, all regulations pertaining to waste management should be strictly adhered to. However, in the meantime, the Council should ensure that the existing site is managed as properly as possible.
- ii) Your Committee wish to commend the Council on the efforts being made to enhance solid waste management. They urge the Council not to relent in its efforts.

Solwezi Municipal Council

- i) Your Committee wishes to put on record that they are pleased with the efforts that are being made by the Solwezi Municipal, in spite of the fact that the Council does not yet have an engineered landfill.
- ii) Your Committee is pleased to learn that the Council has sourced land for the engineered landfill and therefore, wishes to urge the Council and all concerned parties, including the Government, to ensure that, as a matter of urgency, funds are made available for the site.
- iii) Your Committee urges the Council to ensure that there is stricter adherence to rules and regulations by ensuring closer monitoring of waste that is taken to the site, and also by ensuring that staff handling waste utilise the protective clothing which they are issued with.

Arising from the deliberations and tours undertaken, your Committee wishes to make the observations set out below pertaining to waste management in Zambia.

- i) Your Committee observes, with dismay, that although rules and regulations governing solid waste management exist in the country, there are serious lapses in adherence to, and enforcement of, such laws.
- ii) Your Committee is of the view that the Environmental Council of Zambia and local authorities are not doing enough to ensure compliance to waste management standards. It is apparent to

your Committee that the players that are involved in the generation of waste, especially manufacturers of packaging materials and retail outlets of various products, are not doing their part as regards minimisation of waste and sensitisation of consumers.

- iii) Your Committee observes that the situation prevailing in the country as regards waste disposal facilities leaves a lot to be desired. It appears as though local authorities are allowing the dumping of waste in a haphazard manner with little consideration for the health of citizens, and safety of the environment or the contamination of groundwater.

Arising from the above observations, your Committee recommends the following:

- i) the Government needs to build the capacity of the Environmental Council of Zambia and local authorities to enable them improve their operations, capacity should be in both human and financial terms so as to enable them carry out closer monitoring and ensure stricter adherence to waste management standards;
- ii) the ECZ needs to ensure that operators and councils obtained licenses for waste management; and operating licenses for dumpsites and transportation of solid waste.
- iii) there is need for enhanced sensitisation of citizens regarding proper waste management practices, Government needs to ensure that the country reaches a level where everyone practices environmentally friendly waste separation, management and disposal;
- iv) local authorities need to ensure that material recovery facilities are developed were certain hazardous materials and expired food substances can be destroyed before disposal at dumpsites;
- v) the Environmental Council of Zambia should ensure closer monitoring of manufacturers of packaging materials and retail outlets to ensure that they strictly adhere to waste minimisation and waste separation practices; further, the Government needs to create an environment for the growth of the recycling industry if non biodegradable waste is to be reduced; and
- vi) as a matter of urgency, proper engineered landfills need to be developed in all councils in the country; your Committee cannot overemphasise the importance of such development to proper solid waste management.

PART III

CLIMATE CHANGE ADAPTATION AND MITIGATION IN ZAMBIA

27. According to the United Nations Framework Convention on Climate Change (UNFCCC), climate change can be defined as the change in climate, which is taking place attributed directly or indirectly to human activities that alter the composition of the global atmosphere. This is in addition to natural climate variability observed over comparable time periods.

The Earth has a natural temperature control system. Certain atmospheric gases are critical to this system and are known as greenhouse gases. On average, about one third of the solar radiation (sunlight and heat) that arrives on earth is reflected back to space. Of the remainder, some is absorbed by the atmosphere, but most is absorbed by the land and oceans. The Earth's surface becomes warm and as a result emits infrared radiation. The greenhouse gases trap the infrared radiation, thus warming the atmosphere. Naturally occurring greenhouse gases include water vapour, carbon dioxide, ozone, methane and nitrous oxide, and together create a natural greenhouse effect. Greenhouse gases greatly affect the temperature of the Earth; without them, Earth's surface would be on average about 33 degrees Celsius (°C) colder.

Summary of Submissions from Stakeholders

The following stakeholders made submissions to your Committee on the subject under discussion:

1. International Union for the Conservation of Nature (IUCN);
2. Wildlife and Environmental Conservation Society of Zambia (WECSZ);
3. World Wildlife Fund For Nature (WWF);
4. University of Zambia (UNZA);
5. ZCCM-Investment Holdings (ZCCM-IH);
6. United Nations Development Programme (UNDP);
7. Zambia Forest and Forestry Industry Corporation (ZAFFICO);
8. Environmental Council of Zambia (ECZ);
9. Ministry of Communications and Transport;
10. Ministry of Agriculture; and
11. Ministry of Tourism, Environment and Natural Resources.

Climate Change

Your Committee was informed that the technical definition of climate change, referred to a statistically significant variation in either the mean state of the climate or in its variability, persisting for an extended period (typically decades or longer). Climate change could be due to natural internal processes or external forces, or to persistent anthropogenic (human induced) changes in the composition of the atmosphere or in land use.

Therefore, climate change could be defined as the change in climate, which was taking place attributed directly or indirectly to human activities that altered the composition of the global atmosphere.

Climate change was accelerating at a faster rate than previously thought by scientists. Climate Change was already posing and would continue to pose further huge challenges to nations, communities and individuals as a result of its impact on the environment.

Causes of Climate Change

Your Committee learnt that the global challenge of climate change was caused by the effect of greenhouse gases (GHGs) emitted mainly from human activities. Greenhouse gases were those gaseous constituents of the atmosphere, both natural and anthropogenic, that absorbed and emitted radiation at specific wavelengths within the spectrum of the Earth's surface, the atmosphere and clouds. The key GHGs were carbon dioxide (CO₂) and methane (CH₄). Human activities had increased the concentration of greenhouse gases in the atmosphere since the start of the industrial era around 1750. These came from the combustion of fossil fuels for industrial or domestic usage; biomass burning; waste decomposition; and land-use (land clearing, charcoal production, firewood; enteric fermentation and burning of agriculture residues). Others were the introduction of substances known as chlorofluorocarbons (CFCs) and other chlorine and bromine compounds.

Greenhouse gases greatly affected the temperature of the Earth. Without them, Earth's surface would be on average about 33°C colder.

Major Causes of Climate Change in Zambia

All the stakeholders, who appeared before your Committee, were in agreement that climate change was a global problem that cut across national boundaries. Industrialised nations have been the main emitters of GHGs gases over the past couple of centuries. However, emissions have been increasing in both developed and developing countries. Zambia like other countries has also contributed to its causes.

Stakeholders submitted that Zambia's contribution to these emissions was largely through deforestation and land clearing; agricultural practices, and transportation. The largest source of GHG emissions in Zambia was land use change and forestry which accounted for about 70% of the total emissions. This was mainly attributed to deforestation associated with land clearing for agriculture, human settlements, charcoal production and timber logging.

Agriculture accounted for about 24% of the GHG emissions in Zambia, mainly in the form of CH₄ and nitrous oxide (N₂O) resulting from prescribed burning of savannah forests and grass lands. Energy accounted for 7% of the GHG emissions, mainly through transportation and to some extent industrial processes.

The major contributors to climate change in Zambia were elaborated to your Committee as outlined below.

- a) Industrial emissions through burning of fossil fuels (mainly from the mining, manufacturing and transport sectors). The main greenhouse gases emitted included carbon dioxide (CO₂) and

sulphur dioxide (SO₂).

- b) Deforestation and land use change. Deforestation was the major cause of climate change in Zambia. It occurred in many forms in the country. Firstly, it was through illegal logging that was not licensed. This happened due to poor law enforcement capacity by the Forestry Department in the Ministry of Tourism, Environment and Natural Resources. Secondly, through licensed but uncontrolled logging resulting in concessionaires harvesting more timber than was stipulated on their license, again due to lack of enforcement and monitoring capacity. Thirdly, through illegal charcoal production. About 90% of all charcoal produced in Zambia was through illegal means, without licences from the Forestry Department. Almost half the rural households in Zambia have become either full-time or part-time charcoal producers. Charcoal production was also fuelled by the high energy demand, particularly in urban centres and also by the poor distribution of electricity in rural, peri-urban and urban areas.
- c) Forest fires that destroyed thousands of hectares of virgin forests every year. While some fires were due to incendiaries, the majority were started through poor agricultural practices, particularly the slash and burn practice, and from unmonitored traditional charcoal earth kilns that have a propensity to cause wild forest fires. Forest fires released significant amounts of CO₂ into the atmosphere.
- d) Agricultural expansion and unsustainable agricultural practices. Land conversion due to agricultural expansion, coupled with ploughing, released large amounts of stored carbon as CO₂ from vegetation and soils. Improper application of nitrogen fertilisers also has resulted in large amounts of nitrous oxide (N₂O) being released into the atmosphere. Furthermore, increased geographical distance between agricultural producers and consumers also results in greater energy use for transportation.

Your Committee learnt that the Environmental Council of Zambia has spearheaded the preparation of all national GHG inventories related to climate change in Zambia.

The national GHG emission trends between 1994 and 2005, for Zambia showed an increase of about 71% during the period. However, the national contribution to global GHG emissions was very insignificant.

Major Effects of Climate Change in Zambia

Your Committee was informed that climate change has and would continue to impact negatively on Zambia in a variety of ways in many sectors including: agriculture; water quality and quantity; energy; food security; wildlife and natural resources; education; health; and infrastructure. The Zambian economy was dependent on the exploitation of the country's natural resources. The adverse effects of climate conditions to which the country is exposed significantly affect these resources. Climate induces changes to physical and biological systems were already

being felt and exerting considerable stress on the country's vulnerable sectors.

The main climatic hazards brought about climate change in Zambia include droughts, floods, extreme heat and shorter rainy season or lower precipitation rates. The potential effects of these climatic hazards were summarised as set out below.

- *Droughts* - Food insecurity and hunger; decreased water quality resulting in outbreaks of diseases; natural resources degradation; reduced water levels in water bodies and hence water shortages; and less capacity to generate hydro power.
- *Floods* - Crop damage or loss resulting in food insecurity; population dislocations; increased outbreaks of waterborne diseases; loss of natural resources; excessive silting and water contamination; destruction of building infrastructure, and frequent power outages.
- *Extreme heat* - Loss of livestock and wildlife; reduced fish stocks; heat stress resulting in loss of work-hours; reduced forest regeneration; and increased energy demand for cooling and freezing.
- *Shorter rainy seasons* - Decreased crop yields resulting in food insecurity; water shortages due to inadequate recharge of groundwater sources; reduced forest regeneration; and reduced water flows to generate electricity.

i) Agriculture and Food Security

Your Committee learnt that agriculture was an integral part of Zambia's economy and was seen as one of the driving forces for the anticipated economic growth required to reduce poverty. The sector contributed between 18-20% to the country's gross domestic product (GDP) and employed approximately 67% of the labour force. It remained the principal source of income and employment for rural women. Zambia's staple food crop maize was particularly vulnerable to temperature changes and water stress. Studies indicated that crop yields from rainfall-fed agricultural could drop by 50% in some African nations, including Zambia, by 2020, undermining national food security.

ii) Livestock, Fisheries and Wildlife

Your Committee was informed that the livestock and wildlife sectors were already being significantly affected by the increased frequency of drought, as heat and water stress directly impacted their physiological processes. Heat and water stress also directly impacted on crop productivity and quality and hence affected feed availability and allocation. This inevitably brought increased pressure of disease on livestock and wildlife due to among others, poor nutritional status. Increased drought frequency inhibited crop and animal system recoveries, resulting in long-term degradation of grazing resources; continued reduction in herd size and destabilisation of the social

and economic standing of resource-poor livestock keepers; and a reduction in Government revenue from tourism wildlife.

Regarding the productivity of fisheries, stakeholders submitted that this was also at risk due to climate change. Potential reduction in rainfall in the medium to low rainfall regions would reduce nutrient levels in lakes and rivers, thereby negatively impacting fish breeding activities and depleting fish populations in the long term.

iii) Water and Energy

Your Committee was informed that the water and energy sectors could suffer from both increased drought and flooding. Increased flooding resulted in the displacement of people and their goods; relocation of livestock and wildlife; and general disorganisation of their socio-economic life. Your Committee was further informed that these occurrences were already common along the Zambezi River flood plain. A drought on the other hand means a general reduction in water availability, which results in deterioration in the quality of water available for human and livestock consumption; reduced re-charge to the underground water aquifers; and reduced water supply from wells and boreholes. This has socio-economic implications on the health of the communities, on industry and on the irrigated agriculture sub-sector. Decreases in rainfall would also have adverse impacts on hydro-electric power generation, which was the mainstay of the Zambian power industry. Studies have shown that during drought periods, electricity generation had been adversely affected as the water levels dropped, leading to reduced power generated at hydro-power stations. This would be more adverse as demand for electricity kept rising due to increased population and economic activities, for example in the mining sector.

iv) Natural Resources

Your Committee learnt that a climatic change seems to be jeopardising regeneration of forests. Rising temperatures were changing weather and vegetation patterns forcing animal species to migrate to new areas in order to survive. The main climatic hazards that threatened the forestry sector were extended droughts, which lead to land degradation and loss of soil fertility, as well as forest fires. Low-income families dependent on biomass fuel for their lighting and cooking would be greatly impacted by such phenomenon caused by climate change.

v) Human Health

Your Committee was informed that a warmer climate was expected to result in an expansion in the range of carriers of vector-borne diseases which would result in higher mortality rates among people suffering from malnutrition. Your Committee was informed that malaria was the leading killer disease in the country, responsible for four millions of cases and 50,000 deaths annually. It was estimated that due to climatic changes, these figures would increase drastically. Other studies have shown that the entire Zambia was vulnerable to a multitude of other climate-sensitive diseases such as dysentery, cholera, respiratory infections and malnutrition.

vi) Human Development and Millennium Development Goals (MDGs)

The UNDP Country Director informed Your Committee that development was about expanding human potential and enlarging human freedom. It was about people developing the capabilities that empowered them to make choices and lead lives they valued. The 2007/2008 Global Human Development Report coined climate change as one of the defining human development issues of our generation. Climate change threatened to erode human freedoms and limit choices. Poor people across the globe were already being forced to cope with the impacts of climate change as exposure to prolonged droughts; intense storms; floods; and environmental stress were holding back their efforts of these people to build a better life for themselves and their children.

Although most countries were off track in meeting the Millennium Development Goals (MDG) by 2015, a lot has been achieved by many others. However, climate change was hampering efforts to deliver the MDG promise. Looking into the future, the danger was that it would halt and then reverse progress built-up over generations; not just in cutting extreme poverty, but in health, nutrition, education and other areas. The effects of climate change would constrain the ability of Zambia to reach her sustainable development objectives under the MDGs.

Legislative and Policy Framework for Addressing Climate Change in Zambia

All the stakeholders, who appeared before your Committee were in agreement that the legislative and policy frameworks addressing climate change concerns in Zambia were inadequate; and thus climate change was not properly integrated into planning processes. The Permanent Secretary, Ministry of Tourism, Environment and Natural Resources submitted that policies such as the National Agricultural Policy and the National Irrigation Policy, did not explicitly acknowledge the impact that climate change was likely to have on their ability to achieve their objectives. The National Policy on Environment, which was officially launched in 2009, covered mainly issues of environmental protection and natural resources management and had not adequately addressed aspects of climate change. The paucity of climate change considerations in major policies was a barrier to increasing resilience of communities against the impacts of climate change.

Climate Change Adaptation

Your Committee was informed that adaptation to climate change referred to reducing the vulnerability of people and the environment to climate change impacts. It involved a process of sustainable and permanent adjustment in response to new and changing environmental circumstances. Although naturally human beings constantly adapted to their surroundings, planned anticipatory adaptation was the most appropriate response to the impacts of anthropogenic climate change around the world, including Zambia. It was therefore necessary that policy makers accepted that the country was facing a real and immediate threat and adapting to the change was necessary. Adaptation was an appropriate response because it was associated with supporting development processes and could facilitate the continuation and improvement of existing livelihoods.

Successful adaptation strategies required action at different levels: from community to national, through to international level. There was growing scientific, economic, political and social consensus that these adaptation measures would require long-term thinking and explicit consideration of climate change risks at the regional national, and local levels. They required a combination of many components, such as an assessment of vulnerabilities to climate change, appropriate technologies, capacity assessment, local coping practices and government actions.

Stakeholders informed your Committee that adaptation was critical for Zambia to meet the challenge of climate change. In order for the vital sectors of its economy like agriculture, tourism, energy and water not to be adversely impacted by climate change, there was need to bring climate resilience (climate proofing) to these sectors. It was established that resources spent in proactive climate proofing would be far less than those required after the damage due to climate change had occurred. It was also important to increase awareness in communities so that they understood the problem, became active participants in these efforts and planned their livelihood properly rather than dealing with damages afterwards.

Your Committee learnt that a community's ability to adapt was constrained by many factors, including increasing scarcity in key resources, limited access to information (including weather, climate change, market, and pest and disease outbreak information); limited education, skills and access to financial services and markets required to diversify their livelihood activities; social and gender inequalities; and marginalisation, which reduced adaptive capacity of the most vulnerable.

Your Committee was informed that the Ministry of Tourism, Environment and Natural Resources (MTENR), being the United Nations Framework Convention on Climate Change (UNFCCC) focal point, has prepared a National Adaptation Programme of Action (NAPA) to specifically address immediate and most urgent adaptation issues, targeting selected vulnerable groups.

Under NAPA, one project entitled "Adaptation to the Effect of Drought and Climate Change in Agro-Ecological Regions I and II in Zambia", from the agriculture sector, has been funded by the Global Environment Fund (GEF). The project aimed at bolstering agricultural policies and development support programmes by integrating climate induced risk management of agricultural resources into policy. It would also improve adaptive capacities of local communities to improve agricultural yields and overcome the water availability challenges under predicted climate change conditions.

Your Committee learnt that this project included the strengthening of the early warning system with the hope that advanced knowledge about potential disasters, as well as timely and permanent access to this information, could motivate communities to establish safeguards particularly at the household level, such as storing excess food produce for a forecasted drought and selling livestock before a disaster struck. Good linkages between the Zambia Meteorological Department, Department of Agriculture and the farming community were essential for this to succeed.

Apart from the NAPA, a Climate Change Facilitation Unit (CCFU) has been established in the Ministry of Tourism, Environment and Natural Resources, charged with the responsibility of developing a comprehensive climate change response strategy aimed at coherent policies and actions towards environmental mainstreaming and climate change adaptation and mitigation.

Other climate change adaptation strategies that were being spearheaded in the country included, but were not limited to the ones outlined below.

- a) The UNDP was assisting the Zambian Government to develop partnerships that were effective to deliver technical expertise, with specialised agencies to support policy changes, capacity building, and climate risk reduction practices that secured the MDGs in the face of climate change. UNDP was therefore supporting the Government of Zambia with technical assistance in the World Bank-led strategic Pilot Programme for Climate Resilience (PPCR), whose objective was to mainstream climate change issues in the Sixth National Development Plan (SNDP) and other strategies, in order to ensure sustainable economic development towards the attainment of the country's Vision 2030.
- b) The International Union for the Conservation of Nature was spearheading the Climate Change Development Project funded by the Finnish Ministry for Foreign Affairs. The project seeks to ensure that climate change related policies and strategies, lead to adaptation activities that emphasised the role of forests and water resources in supporting people's livelihoods and farming systems. The activities being carried out include, but are not limited to, policy influence such as engaging the relevant line ministries on the development of a National Climate Change Response Strategy; capacity building on various vulnerability and adaptation screening assessment tools and methods; and technical and material support for implementation of adaptation activities in six selected local communities.
- c) The Wildlife and Environmental Conservation Society of Zambia has been running the Chongololo Club of the Air radio programme which reaches at least eight hundred thousand children and their parents through its Sunday broadcasts. Specific changes have been made to programme in a bid to widen the footprint of existing climate awareness by incorporating specific material on climate change, global warming and adaptation strategies.
- d) The Wildlife and Environmental Conservation Society of Zambia and its branches support periodic talks on climate change and low carbon/low energy subjects. It also continues with its long-running support for leadership in tree planting programmes and in the training of club leaders and personnel from other environmental organisations.
- e) World Wildlife Fund for Nature (WWF) supports and provides the Secretariat for the Zambia Community Based Natural Resource Management (CBNRM) Forum and the Zambia Civil Society Climate Change Network. The CBNRM Forum is concerned with the

promotion of community based approaches as part of the mainstream efforts in conservation and rural development through policy dialogue, advocacy and stakeholder mobilisation. The Zambia Civil Society Climate Change Network is concerned with the promotion of awareness about climate change and building of capacity in civil society for responding to the challenge. It also participates in subsequent policy debates and programming as part of the national climate change response.

Climate Change Mitigation

Your Committee learnt that climate change mitigation relates to processes that are aimed at reducing the emission and accumulation of green house gases. These mitigation measures include the actual minimisation in emission of green house gases and reduction in accumulated levels of such gases.

Your Committee was informed that the Ministry of Tourism, Environment and Natural Resources with the support of the United Nations Development Programme and United Nations Environment Programme (UNEP), was implementing the Clean Development Mechanism (CDM), a regional capacity development project. The overall aim of the project was to build the capacity of Zambia to access the CDM and assist the country to create an operational CDM and voluntary carbon market framework in which public institutions and the private sector could interact and establish CDM projects.

Following ratification of the Kyoto Protocol of the UNFCCC, the Ministry of Tourism, Environment and Natural Resources in consultation with other stakeholders has established the Designated National Authority (DNA) to facilitate implementation of CDM Projects. The DNA consisted of representatives from line ministries, the private sector and civil society.

The CDM projects, whose implementation is facilitated by the DNA, are intended to contribute to the global reduction of GHG emissions and to help Zambia to reach some of its economic, social, environmental and sustainable development objectives.

Your Committee was, however, informed that the challenges which have been encountered in implementing CDM projects have been lack of finance for the projects; weak financial bases of potential project developers; lack of CDM investment portfolios in local financial institutions lending policies; and complicated and/or lack of approved methodologies.

Your Committee learnt that another climate change mitigation initiative that Zambia was trying to put in place was the United Nations Reduced Emissions from Deforestation and Forest Degradation (UN-REDD) Programme. The Forestry Department has been identified as the lead agency to undertake programme activities. A number of research studies indicates that one of the effective ways to reduce the levels of accumulated green house gases was through increasing forest biomass by decreasing the rate of deforestation.

Stakeholders submitted that in recognition of the important role that forests play in mitigating climate change, the Zambian Government took the initiative to request support to respond to the UNFCCC decision on Reduced Emissions from Deforestation and Forest Degradation (REDD). Zambia was one of the nine countries in the world chosen to pilot the UN-REDD programme. The aim of REDD was to ensure that further deforestation and degradation was significantly curbed, thereby reducing GHG emissions from deforestation and degradation. In order to achieve this, efforts are required to adapt forest management systems, establish financing mechanisms as well as monitoring, reporting and validating systems attuned to country needs.

Climate Change and Meteorology

Your Committee learnt that, primarily, the role of Meteorological Department in climate variability, climate change mitigation and adaptation is premised on the fact that it was the institution that monitored and measured climate phenomena and parameters and generated the baseline climate variability/change assessments and scenarios.

The Permanent Secretary, Ministry of Communications and Transport, informed your Committee that meteorology provided the necessary information for planning and decision making on climate variability/change mitigation and adaptation strategies. He stated that the goal of climate services framework was to “enable better management of risks of climate variability and change and adaptation of climate change at all levels, through development and incorporation of science based climate information and predication into planning, policy and practice.”

Comprehensive climate information and services at various levels, from global to regional, national and local at various time-scales, is fundamental to the design of effective adaptation and mitigation policies. There is a need to recognise that climate information is already available for adaptation and mitigation planning. This information is often not used in an optimal manner because of lack of mechanisms that better connect users to the experts generating the information.

Way Forward in Tackling Climate Change

Stakeholders submitted that in order to address the issue of climate change in Zambia, there was need for effective implementation of mitigation and adaptation measures. There is need for Government to facilitate policies which would enable communities to adapt to and mitigate the effects of climate change to sustainably service the environment through:

- i) setting up an institutional framework backed by legislation;
- ii) developing the climate change response strategy;
- iii) creating awareness on climate change issues;
- iv) ensuring the mainstreaming of climate change in sector plans and programmes;

- v) building institutional and technical capacity on climate change issues;
- vi) improving inter-sectoral coordination mechanisms on climate change issues; and
- vii) setting up a viable financial framework to support climate change interventions.

Your Committee was informed that the impacts of climate change are complex. To be effective, climate change responses need to be integrated into policy targets. Policy makers ought to be responsive to the needs as prioritised at the local levels and in the context of expected climate change in each region. Given that natural resources continued to underpin the economy of Zambia, natural resource management planning has to be undertaken through inter-sectoral processes.

Your Committee was further informed that climate change should not be viewed only as a challenge, but also as an opportunity to bring about robust development to communities. It was important to acknowledge the fact that climate change is a development issue and affects the way people live. It affects the country's progress to attain the Millennium Development Goals (MDGs) and efforts to reduce poverty and hunger, as it cut across all sectors of the economy (it affects different sectors of the national economy and therefore requires a cross-sectoral approach).

In order to effectively participate in, and fully benefit from, the new climate change and development paradigm, Zambia requires engaging a variety of public, private sectors; and civil society stakeholders to gather broad-based support. Additionally, there is need to co-ordinate across key economic sectors because actions to promote increased resilience to the impacts of climate change and lower GHG emissions fell across a variety of sectors – such as energy, agriculture, health, water resources and infrastructure.

Committee's Observations and Recommendations

28. Your Committee recognises that the global phenomenon of climate change is one of the biggest threats that present and future generations are faced with. In recognising this, your Committee wishes to outline their observations and recommendations as set out below.

- i) Zambia's contribution of green house gases on the global scale is still insignificant. However, because changes in climate are not restricted by international boundaries, climate change is already having a negative impact on important sectors in Zambia.

Your Committee, therefore, is of the view that everyone needs to play a part in ensuring that the country balances its developmental needs with what reduction in green house gases it can offer on the global scale.

- ii) Your Committee observes the major causes of climate change in Zambia as pointed out to them by stakeholders.

Your Committee, therefore, urges the Government to ensure that as the country continues to endeavour to develop, it should adopt a low emission economic growth path by among others:

- conserving its natural resources like forests;
- adopting more environmentally friendly farming methods and land use practices; and
- pursuing alternative sources of sustainable energy.

- iii) There is need to increase and strengthen the country's resilience to the effects of climate change. Your Committee is of the view that Zambia needs to enhance its adaptive capacity through a comprehensive strategy to respond to climate change.

Your Committee, therefore, recommends that adaptation strategies should be carried out by enhancing the adaptive capacity of communities through community-based and community-led interventions. The country needs to integrate climate adaptation into development planning through all line ministries in a way that supports adaptation at multiple scales and levels, and more importantly at the community level.

- iv) Your Committee is pleased to note that efforts have been made to include climate change adaptation and mitigation planning in the Sixth National Development Plan. However, it observes that there is lack of a well defined policy and legal framework to address issues of climate change.

Your Committee, therefore, recommends that as a matter of urgency, a comprehensive policy and legal framework on climate change should be developed. Such a framework should be backed by a well coordinated institutional framework and a strong resource mobilisation strategy. The Government should ensure the mainstreaming of climate change into all sector plans and programmes; and build institutional and technical capacity on climate change issues.

- v) Your Committee observes that the phenomenon of climate change and its possible devastating effects is not understood by the majority of people who are most vulnerable to it. It, therefore, urges the Government, through all relevant ministries, to put more concerted efforts into creating awareness on climate change issues at all levels, from national to local. Your Committee wishes to emphasise the important role that the media should play in sensitisation of the public on issues of climate change and, therefore, urges the media to be in the forefront in carrying out awareness programmes.

- vi) Your Committee recognises the important role that is played by cooperating partners and non governmental organisations in helping the country mitigate and adapt to the effects of climate change.

Your Committee recommends that the Government should continue to support initiatives such as UN-REDD and Clean Development Mechanism, among others. It wishes to commend all cooperating partners and urges them not to relent in their support to these initiatives.

- vii) Your Committee observes the important role that is being played by various Government ministries and departments including the Forestry Department, Department of Agriculture, Department of Meteorology and Environmental Council of Zambia, among others, in addressing the issue of climate change.

Your Committee urges the Government to ensure that all these state players are given the necessary financial and technical capacity to be able to effectively carry out their mandates.

- viii) Your Committee is of the view that while developing countries, including Zambia, despite being the least contributors to greenhouse gas emissions are making serious efforts to minimise their net contribution of these gases. The Committee however, notes that developed nations appear to not be trying to significantly reduce their green house gas emission levels but are opting instead to “buy” African and less developed countries forests as carbon sinks.

Your Committee wishes to lay strong caution to the Government to tread carefully regarding this carbon sinking because this can lead to the country losing valuable forests as the forests are turned into stock exchange commodities for developed countries, with the major benefits going to the stock traders. Your Committee wishes to point out that developed countries should be strongly urged to play their part in reducing their green house gas emissions.

Climate Change Tour Report

29. Regarding the issue of climate change, your Committee toured North Swaka National Forest in Mkushi; Zambia Forestry and Forest Industries Corporation (ZAFFICO) Limited in Ndola; Zambia Forestry College in Kitwe; and Lumwana Copper Mines in Solwezi

Forestry Department-Central Province

30. Your Committee toured the Forestry Department in Central Province and were informed that forests were one of the most important natural resources of Zambia, covering about 55 percent of the total land area of the country, though most of it is degraded. Forests played a vital role in people’s livelihoods as they were major sources of traditional medicine, wood fuel, food and raw materials for domestic and industrial uses.

Your Committee learnt that the Forestry Department has an enormous task of protecting and managing forest resources in the province to ensure sustainable forest management and utilisation. Central Province has great potential to generate Government revenue from the sale of a broad spectrum of forest products and services. However, meaningful sustainable forest management could only be attained if the Department was provided with the much-needed financial and human resources.

Your Committee was informed that forestry plays major roles in both carbon and hydrogen cycles. These were key factors in watershed and soil conservation. However, forest resources in Zambia are under pressure from the effects of deforestation, encroachment, and uncontrolled bush fires.

Forest degradation was primarily as a result of conflicting developmental policies which tended to discourage forest management and appeared to favour other land-use types at the expense of the forests.

Zambia's Forestry Policy of 1998 was based on the following principles:

- i) to ensure sustainable forest resources management and utilisation;
- ii) to develop capacity of all stakeholders in sustainable forest resources management and utilisation;
- iii) to promote a participatory approach to forestry development by developing close partnership amongst all stakeholders;
- iv) to facilitate private sector involvement in forestry development; and
- v) to promote equitable participation by men, women and children in forestry development and adopt an integrated approach, through intra and inter-sectoral co-ordination in forestry sector development.

Your Committee learnt that the Forestry Department in Central Province was facing a number of challenges including financial constraints; insufficient transport; inadequate environmentally sound technologies; outdated forestry inventory record; poor forest resource accounting; institutional changes; low staffing levels; and lack of office accommodation, equipment and furniture in some stations.

As part of the tour North Swaka National Forest protected forest area (PFA) 46 which is located in the northern part of Mkushi District. The forest covers an area of 18, 388 hectares and shares boundaries with the Democratic Republic of Congo. Your Committee learnt that the reserve is surrounded by the Upper Lunsemfwa Resettlement scheme and local communities under Chiefs Chitina and Shaibila of the Swaka-Lala ethnic groups.

The area was gazetted as a protected forest area because of the important ecological functions it performs. It is a watershed area for the Lunsemfwa River and other stream sources like Chibefwe, Nkolonga, Kango, Kamimbya, Munsakamba, and Musofu. It also protects Ilume and Musofu Hills against land degradation and plays an important role in the maintenance of biological diversity.

Your Committee was informed that the forest reserve was in a good state. However, there was some encroachment in the eastern block of the forest where illegal charcoal production took place. Your Committee also found that a gold mine was operating in the reserve. In order to pave way for the mining activities the Changwena stream has been diverted from its natural course. According to officers from the Forestry Department, the Department has not received any documentation regarding the setting up of the mine, despite it being in a protected forest and therefore, the mining company was operating illegally. However, Your Committee was unable to verify whether the mine has a valid license to operate as the managers of the mine were not on site at the time of the tour.



Committee Members at the goldmine in North Swaka Protected Forest Area



Changwena Stream which was diverted to pave way for mining operations

Committee's Observations and Recommendations

- i) Your Committee appreciates the work that the Forestry Department in Central Province and around the country is doing, despite the inadequate support that the Department is receiving from the Government.

Arising from the above, your Committee urges the Government to attach greater value to the operations of the Forestry Department and to ensure that it receives adequate support in terms of financial, material and human resources.

- ii) Your Committee observes, with dismay, that the *Forestry Act*, Chapter 199 of Laws of Zambia has not been operationalised and therefore, strongly urges the Government to ensure that the Act is reviewed and made operational, as a matter of urgency. This, in your Committee's opinion, together with improved funding, will go a long way in empowering the Forestry Department to be able to carry out stronger enforcement on illegal and indiscriminate cutting of trees.
- iii) Your Committee wishes to point out that it was unable to verify the legality of the mining activities in North Swaka Forest. However, your Committee wishes to state that the importance of preserving Zambia's forests to mitigating the effects of climate change cannot be overemphasised. They are, therefore, dismayed that productive activities can be undertaken in a protected forest area without the knowledge and consent of the Forestry Department.

Your Committee is hopeful that all relevant Government ministries and departments are aware of the mining activities that are taking place in North Swaka and urges that necessary consultation with the Forestry Department is undertaken. Your Committee strongly cautions against the practice of haphazard development which will in the long term be detrimental to the economic growth of the nation and will have a negative impact on mitigating the effects of climate change.

Zambia Forest and Forestry Industry Corporation

31. Your Committee toured Zambia Forest and Forestry Industry Corporation (ZAFFICO) in Ndola. They were accompanied by officers from the Ministry of Tourism, Environment and Natural Resources. They were met by the Director of Plantations, Director of Finance, Corporation Secretary and other senior management officials.

The Director of Plantations informed your Committee that Government started commercial forest plantations in 1962, as a result of declining timber yields in natural forests. Establishment of plantations was carried out by Industrial Plantations Division (IPD) of Forest Department. In 1982, IPD was transformed to ZAFFICO Limited and took over Dola Hill, Kalibu and Kafubu Sawmills and the role treatment plant together with 50,000 hectares of plantations. By 2002, ZAFFICO processing units were privatised and 2,000 hectares of plantations leased to the private sector.

At the time of your Committee's tour ZAFFICO had about 48,000 hectares in four plantation groups of Ndola, Chati, Ichimpe and Lamba located in Ndola, Kalulushi, Kitwe and Lufwanyama districts.

Your Committee was informed that ZAFFICO was 100% GRZ owned; with Ministry of Finance and National Planning holding 98%, Ministry of Tourism Environment and Natural Resources holding 1% and ZAFFICO holding 1% shares.

Regarding the main causes for the declining stock and annual allowable cut, your Committee learnt that over 90% of total growing stock was above rotation age or had reached maturity. This was due to inadequate annual replanting of felled areas which has led to insufficient restocking; inadequate resources for restocking and lack of investment capital for plantation expansion; and rapid increase in wood demand at national and regional levels.

The Director of Plantations informed your Committee that ZAFFICO's future prospects for forest plantation are:

- 2009-14 forest management plan aimed at restocking all clear felled areas in two years;
- increasing planted area of about 50,000 hectares to 85,000 hectares in the next ten years; and
- identifying additional suitable plantation areas in other provinces.

The Director of Finance informed your Committee that in 1984, the Government negotiated for a loan from the International Development Association (IDA) amounting to Special Drawing Rights (SDR) 21.5 million for the Industrial Forestry Project- Phase III. Out of this amount, SDR17.9 million was disbursed to the Government. Of the disbursed amount, SDR9.6 million was given to ZAFFICO as capital contribution and was used to establish additional forest plantations. SDR5.9 million was on-lent by the Government to ZAFFICO as a subsidiary loan and was used to establish the following units:

- a) commercial sawmills at Kafubu and Kalibu;
- b) treatment plants at Kafubu;
- c) dry kilns at Kafubu and Kalibu; and
- d) residential flats in Ndola.

However, following the Government's liberalisation policy all the above mentioned production units were privatised in 2002 and the residential flats sold to sitting tenants leaving ZAFFICO with only the management of plantations.

Most of the proceeds from the sale of the production units were used to pay retrenchment benefits. The balance of the proceeds was being held by the Ministry of Finance and National Planning.

Your Committee was informed that IDA loan had a crippling financial effect which has adversely affected the operations and profitability of the Corporation to the extent that it was not in a position to service the loan.

The Director of Finance stated that there was need to effectively restructure the balance sheet of the Corporation through:

- a) converting the IDA loan to equity. The Government, through the Ministry Finance and National Planning, was being persuaded to look at this option. This argument was buttressed by the fact that the assets which were financed by loan were no longer with the Corporation and therefore did not contribute to the returns on capital generated by the company's operation; or
- b) completely write-off of the loan from the Corporation's books of accounts. This option would allow the Corporation to free resources from principal and interest payment savings and exchange losses. It would also help the Corporation improve its balance sheet and allow room for improvement in the Corporation's profitability through savings made from interest expense.

Your Committee was informed that the major challenges that the Corporation was facing include:

- the outstanding IDA loan which make it difficult to borrow from financial institutions;
- increased encroachment into the surrounding forest reserves which threaten the forest plantations;
- increased mining exploration activities leading to land use conflicts;
- rapid increase in wood demand which threatened long term wood supply; and
- inadequate resources for future expansion of existing plantations.



Members of the Committee examining recently planted stands at a ZAFFICO Plantation

Committee's Observations and Recommendations

- i) Your Committee observes that forests in both forest plantations and natural forests have a role to play in climate change mitigation and adaptation. It further observes that levels of absorption of green house gases are adversely affected by the decrease forest biomass available attributed to high rates of deforestation.

Your Committee, therefore, urges ZAFFICO Limited to step up its efforts in increasing replanting of harvested stands and also increase its plantation areas because forest plantations are important in the process of reforestation.

- ii) Your Committee urges the Government to develop mechanisms for encouraging private sector participation in growing of new forest plantations.
- iii) Your Committee urges the Government, through the Ministry of Finance and National Planning, to ensure ZAFFICO Limited is adequately recapitalised so that the company can effectively carry out its mandate. Further, the Ministry should, as a matter of urgency, find a way positively of dealing with ZAFFICO's IDA loan.
- iv) Your Committee recognises the fact that there is a new management team at ZAFFICO and urges them to ensure that they put concerted efforts into moving the Corporation forward.

Zambia Forestry College

32. Your Committee visited the Zambia Forestry College in Kitwe, located in the Mwekera National Forest and was informed that the College was the only key training institution in forestry and its related fields.

Before 1995 the Forestry Department was the main employer of graduates from the Zambia Forestry College. However, due to changes in the policy environment and other economic and political factors in line with national, regional and global demands the Department stopped recruitment of graduates from the Zambia Forestry College in 1996.

In line with these changes Zambia Forestry College found the need to revise its curriculum in order to align itself with the changes, and has recently shifted its focus towards tourism, environment and natural resources, in order to enhance its contribution to sustainable development and to respond to stakeholder demands. Management recognised that in recent years, the increasingly complex challenge of reconciling the demands of the various users of forests and forest lands has increased the need for foresters to learn more about the environmental function of forests, without diminishing the value of their productive function.

Your Committee was informed that accomplishment of the College objectives has not been easy due to following factors:

- limited budget allocations from the treasury;
- inadequate transport;
- poor networking facilities;
- insufficient of training materials;
- inappropriate incentive scheme for academic staff;
- poor staffing levels;
- dilapidated infrastructure;
- old water reticulation system;
- inadequate office and residential accommodation;
- poor social facilities;
- inadequate security; and
- encroachments and illegal settlements on College land.

Regarding the management of the College, your Committee was informed that this has been discussed at various forums. Some stakeholders have suggested that the College be handed over to Technical and Vocational Training Authority (TEVETA), while others have suggested that it be handed over to the Copperbelt University (CBU). However, no decision has yet been made to remove the College from the Ministry of Tourism, Environment and Natural Resources.

Your Committee was further informed that the infrastructure of the College belonged to the Forestry Department and was located in a forest reserve which also belongs to the Forestry Department.

Committee's Observations and Recommendations

Your Committee appreciates the important role that the courses offered at the Zambia Forestry College play in helping to conserve the country's natural resources and consequently mitigate the effects of climate change. Your Committee notes the difficult circumstances under which the College is operating and urges the Government, through the Ministry of Tourism, Environment and Natural Resources, to quickly find ways of correcting these problems and improving funding to the institution.

Lumwana Copper Mines

33. Your Committee undertook a tour to Lumwana Copper Mine to learn more about the way the mine was managing its uranium mining activities. The Committee wanted to know what measures Lumwana was taking to ensure that there were no radiation leaks from the mined uranium. Your Committee was accompanied by officers from the Environmental Council of Zambia.

The Managing Director informed your Committee that the mining Company was owned by Equinox Minerals Limited, an Australian- Canadian mining company. Lumwana mine was reported to be Africa's largest copper mine with a target of producing 170, 000 tons per annum and has two major copper deposits at Malundwe and Chimiwungo. The copper produced was

processed by Chambishi Copper Smelter and Konkola Copper Mines Nchanga smelter while a small amount was sold to international traders.

Your Committee was informed that safety was the number one priority of the mine and to this effect, Lumwana has a strong safety vision driven by management and hoped to establish a benchmark operation for safety in Southern Africa.

Your Committee learnt that after a feasibility study, it was discovered that uranium and copper could be mined simultaneously from some uranium-enriched zones in the Lumwana copper pits. An Environmental Impact Assessment (EIA) was done as part of the uranium feasibility study and this was subsequently approved by the Environmental Council of Zambia. After the approval, Lumwana obtained separate licences for mining, storage and transportation of uranium.

The Managing Director stated that the uranium zones were discrete high-grade segregations and were not present in all the copper deposits. These zones were being separately excavated and the uranium was stockpiled in accordance with Zambian legislation and international best practice. The mine has a stockpile of three metric tonnes of uranium which has a strength of 950 ppm (parts per million) and contained 0.8% copper.

Regarding the safety of human beings who came in contact with the uranium, the Managing Director explained that there was a monitoring programme in place to look at the exposure of employees to radiation and this was done according to the International Radiation Agency standards.

He further stated that because the copper ore that was mined contains traces of uranium, the concentrate that was sent to smelters at Chambishi and Nchanga has agreed minimum uranium levels which the smelters could handle. Equinox Minerals Limited was yet to undertake a development decision regarding a uranium processing plant and this was subject to certain considerations including financing.

Regarding environmental management your Committee was informed that Lumwana has all the required licenses in place. The mine has not faced any legal non-compliance events since the project commenced and has comprehensive programs in place for surface water, ground water, radiation, air, dust, noise and vibration pollution. The mine ensures that land disturbance and clearing are closely monitored and controlled. Further, waste management and contaminated soil remediation facilities have been established.

Your Committee was informed by officers from Environmental Council of Zambia (ECZ) that due to inadequate capacity and low staffing levels, ECZ was not always able to monitor the activities at the Mine.



Committee Members inspecting the uranium stockpile at Lumwana Mine

Committee's Observations and Recommendations

Your Committee wishes to categorically state from the outset that Zambia as a country is not ready to handle the mining of uranium because there is no legal, policy or institutional framework in place, to handle such an activity. The effects that radiation leaks can have on the environment and on the health, have not yet been properly understood in the country.

Your Committee further wishes to state that, by its own admission, the Environmental Council of Zambia, is ill equipped to handle the uranium mining activities that are taking place at Lumwana, and other uranium exploration activities that are taking place in other parts of the country.

Your Committee, therefore, strongly cautions the Government to ensure that until such a time that the country is ready to handle uranium, extra care should be taken in monitoring all uranium mining activities that are taking place around the country.

Arising from the above, therefore, there is need for capacity to be built, both human and material, at the Environmental Council of Zambia, Ministry of Mines and Minerals Development and all relevant agencies.

In the mean time, however, your Committee urges the inspectorate at the Ministry of Mines and Minerals Development; and the Environmental Council of Zambia to step up monitoring activities and to ensure that all citizens who come in contact with uranium are properly protected.

PART IV

Itezhi Tezhi Tour Report

34. Your Committee undertook a ZESCO Limited sponsored tour of Itezhi tezhi Dam. The purpose of the tour was to get an update on the progress that was being made towards development of the Itezhi Tezhi Power Station. Your Committee was accompanied on the tour by officials from the Itezhi Tezhi Power Corporation, and the Itezhi Tezhi District Commissioner was also part of the tour entourage.

Your Committee was informed that Itezhi Tezhi Power Corporation, a joint venture company established between ZESCO Limited and TATA Africa Holdings (SA) Limited, was developing a 2 x 60 MW Itezhi-Tezhi Power Station at an estimated cost of US\$230million. The Itezhi Tezhi Power Station would be located at the existing Itezhi-tezhi Dam which was built as a storage reservoir for the Kafue Gorge Hydro Power Station. The proposed Itezhi Tezhi Hydropower project would be located on the downstream side of the dam.

The project would include the following components:

- i) design, supply, construction, installations and commissioning of 2 x 60mw turbine and generators;
- ii) design, supply and construction of intake structure complete with screens, trash rack, gates;
- iii) design, supply, and construction of dedicated penstocks for each unit and respective screens;
- iv) design, and construction of a surface power house to accommodate two generating units, 18kv phase insulated busbars, local control room, relay room, station services, battery room;
- v) design and construction of a 132kv/11kv outdoor substation and a switchyard to accommodate three transformer bays;
- vi) design, supply, construction installation and commissioning of auxiliary equipment and balance of plant for the hydro power station; and
- vii) design and construction of associated civil works.

Your Committee was informed that the Project would include the construction of housing units for staff. Other direct benefits to Itezhi Tezhi District would be reliability of power supply and the installation of a new water treatment plant to improve the supply of clean water.

Your Committee was informed that the project would take an estimated thirty-two months form July, 2010, to February 2014.



Committee Members listening to Itezhi Tezhi Power Corporation representatives during the tour

Committee's Observations and Recommendations

Your Committee wishes to point out that although the project is scheduled to start in July, 2010, there have been many Government pronouncements in the past, to the effect that the project is nearing commencement. Your Committee, therefore, is hopeful that the project will commence and end as scheduled because it realises that completion of the project will go a long way in alleviating the power deficit problems that Zambia is faced with.

Further, your Committee wishes to urge the Government to repair the road leading to Itezhi Tezhi because the district has huge tourism potential which will increase with the completion of the power project.

PART V

CONSIDERATION OF ACTION-TAKEN REPORT ON THE FIRST REPORT OF THE COMMITTEE FOR THE FOURTH SESSION OF THE TENTH NATIONAL ASSEMBLY

Rural Electrification

35. In its First Report for the Fourth Session of the Tenth National Assembly, your Committee had observed that there was need for a study to be conducted to determine what percentage of rural had been electrified since the rural electrification exercise began.

In the Action-Taken Report, Your Committee was informed that the Government agreed with the Committee and acknowledged that the study would be conducted through the Ministry of Energy and Water Development.

Committee's Observations and Recommendations

In noting the Executive's response, your Committee requests that they be kept updated on the progress made as regards undertaking the study.

Tourism and Hospitality Training

a) In its First Report for the Fourth Session of the Tenth National Assembly your Committee had expressed concern at the situation prevailing in the country where colleges seemed to be mushrooming without proper supervision. In particular, your Committee was concerned about the large number of colleges offering training in the tourism and hospitality industry without appropriate learning facilities and infrastructure. Your Committee found it highly unacceptable that institutions offering such specialised training did not have basic necessary equipment such as kitchens for training. Your Committee strongly recommended that the Technical Vocation and Entrepreneurship Training Authority and relevant Government ministries, should take urgent strides in correcting the situation.

Your Committee further recommended that, as a matter of urgency, the syllabi, infrastructure, premises, qualifications of lecturers and accreditation of such colleges should be closely scrutinised to ensure that those that did not meet the minimum criteria and set standards were closed down as soon as possible. Your Committee was of the opinion that it was a great injustice for these institutions to be collecting money from the general public in exchange for substandard educational qualifications.

In the Action Taken Report, the Government informed your Committee that in the past, monitoring and evaluation of tourism and hospitality training institutions, was solely left to the Technical Vocation and Entrepreneurship Training Authority, without any input from the Ministry of Tourism, Environment and Natural Resources, resulting in substandard tourism and hospitality training facilities, and consequently, poor service delivery. The Government promised to ensure that the Ministry of Tourism, Environment and Natural Resources worked in collaboration with the Ministry of Science, Technology and Vocational Training, and other stakeholders, in monitoring and evaluation of tourism and hospitality training institutions so that providers of training in the tourism and hospitality industry maintain appropriate learning facilities and infrastructure. The Government, through the Ministry of Tourism, Environment and Natural Resources, would provide input to the scrutiny of syllabi, infrastructure, premises, qualifications of lecturers, and accreditation of colleges providing tourism training to ensure that only credible institutions are allowed to operate.

Committee's Observations and Recommendations

In noting the Executive's response, your Committee requests that it be kept updated on the progress made as regards collaboration among the concerned ministries.

b) In its First Report for the Fourth Session of the Tenth National Assembly, your Committee had implored the Government to put more concerted efforts into providing the necessary support to the Hospitality and Tourism Training Institute Trust, so that it could also become a world class

centre, as a starting point to improving training in the sector.

In the Action-Taken Report, the Government informed your Committee that the Government was looking for financial resources to develop a University Campus in Livingstone to provide advanced courses and research for the tourism sector.

Committee's Observations and Recommendations

In noting the Executive's response, your Committee wishes, to be updated on the progress made as regards developing the college.

Grading and Classification of Hospitality Establishments

In its First Report for the Fourth Session of the Tenth National Assembly, your Committee had urged the Government to expedite the process of grading and classifying hospitality establishments for ease of monitoring standards.

In the Action-Taken Report, your Committee was informed that the Government, through the Ministry of Justice, had approved a Statutory Instrument containing classification and grading requirements in December, 2009, and the gazetting process was being undertaken.

Committee's Observations and Recommendations

In noting the Executive's response, your Committee wishes, as a matter of to be updated on the progress made as regards the stated SI.

Game Management Plans

In its First Report for the Fourth Session of the Tenth National Assembly, your Committee had urged the Government to come up with a mechanism of ensuring that game management plans were given some form of legal status so as to ensure that they were enforceable.

In the Action-Taken Report, your Committee was informed that in a bid to make game management plans enforceable, the Government was reviewing the *National Parks and Wildlife Act* Chapter 201 of the Laws of Zambia and the *Zambia Wildlife Act* No 12 of 1998.

Committee's Observations and Recommendations

In noting the Executive's response in the Action-Taken Report, your Committee urges the responsible Ministry to expedite the process of reviewing the two Acts.

Zambia Wildlife Authority (ZAWA)

In its First Report for the Fourth Session of the Tenth National Assembly your Committee had noted the challenges that the Zambia Wildlife Authority was facing in its operations and had urged the Government to ensure that the Zambia Wildlife Authority was adequately funded. Your Committee had further urged the Government to begin to devote more

resources towards the improvement of the operations of ZAWA. However, your Committee cautioned that, there was a need for an ideal situation to be achieved where ZAWA's dependency on the Government was reduced and eventually done away with completely. It, therefore, urged ZAWA to ensure efficiency and accountability in their operations if this was to be achieved.

In the Action-Taken Report, your Committee was informed that it was the desire of the Government to increase funding to ZAWA. However, this had not been possible due to limitations in budgetary resources. Your Committee was further informed that the initial intention of the Government was to provide ZAWA with funds for operations so that they could stand on their own. This had not been possible due to inadequate budgetary resources. In the 2010 Budget ZAWA was allocated an additional K500, 000,000 for re-stocking the Lusaka Park which was meant to cater for tourists especially those who visited Zambia for a short period. This was in a bid to improve ZAWA's financing.

Committee's Observations and Recommendations

In noting the Executive's response in the Action-Taken Report, your Committee resolved to undertake a tour of the Lusaka Park to learn how the re-stocking exercise was progressing, as outlined in the tour report below.

Your Committee was received by the ZAWA Director General, Lusaka Park Ranger and other ZAWA officials.

Your Committee was informed that Lusaka Park was the ZAWA's twentieth national park. It was supposed to have been opened at the end of 2009, but due to the poor road network and lack of park infrastructure. The Director General informed your Committee that there was need for the development of recreation facilities, restaurant, lodges and other amenities in order to turn it into a full fledged national park. However, ZAWA did not have the financial ability or capacity to develop such infrastructure. In this regard, ZAWA was looking at the possibility of entering into public private partnerships to develop the park and to make it financially viable.

Your Committee was informed that ZAWA required more than K1.8billion in order to improve the roads and Park Headquarters. It was further informed that the Park had inadequate manpower and motor vehicles.

Regarding re-stocking of the Park, your Committee learnt that ZAWA was awaiting the release of funds from the Government before the restocking exercise could be completed.

Arising from the tour, your Committee wishes to be kept updated on the progress that is being made as regards the development of the Lusaka Park.

Kapisya Geothermal Plant

In their First Report for the Fourth Session of the Tenth National Assembly, your Committee had urged the Government to source funds to revive the development of the Kapisya Geothermal Plant as the country endeavoured to diversify to other renewable sources of energy.

In the Action-Taken Report, your Committee was informed that following the completion of the feasibility study of the project, the Government was working closely with ZESCO Limited to ensure that a bankable project document was done to assist in the mobilisation of financing for the project.

Committee's Observations and Recommendations

In noting the Executive's response in the Action-Taken Report, your Committee wishes to be updated on the progress made in sourcing funding for the project.

National Water Policy and National Water Resources Management Bill

In their Report for 2008, your previous Committee noted that the importance of water to national development could not be overemphasised. It further noted that there were a lot of pieces of legislation governing the conservation and development of Zambia's water resources. In light of this, there was need for co-ordination of the laws and a proper integrated approach to ensure that water could be used for all economic activities like tourism, farming, electricity generation, irrigation and transportation, while ensuring, as much as possible, that the aesthetic value of the water was preserved.

In the Action-Taken Report, the Government informed your Committee that the Revised National Water Policy was rejected by Cabinet which further directed that, to expedite the process of adopting the National Water Policy, an Inter-Ministerial Committee should be constituted to consider various aspects of the proposed policy to ensure that it takes into account all relevant issues given the cross cutting nature of water. The committee was expected to complete its work within the first quarter of 2010.

Committee's Observations and Recommendations

In noting the response, your Committee observes that there is need for the Government to expedite the process of adopting the National Water Policy and enacting the National Water Resources Management Bill into law. It wishes to be updated on the progress made in this regard.

Environmental Council of Zambia (ECZ)

In their Report for 2007, your Committee observed that the law governing the ECZ, the *Environmental Protection and Pollution Act* No 12 of 1990, needed to be reviewed, as matter of urgency.

In the Action-Taken Report, your Committee was informed that the Ministry of Tourism, Environment and Natural Resources, working in conjunction with the Environmental Council of Zambia, had completed the process of reviewing the *Environmental Protection and Pollution Control Act*. The draft Act has since been submitted to the Ministry of Justice for further action.

Committee's Observations and Recommendations

In noting the Executive's response in the Action-Taken Report, your Committee urges the Ministry of Justice to expedite the process so that the new legislation is enacted as a matter of urgency.

CONCLUSION

36. In conclusion, your Committee wishes to express its gratitude to you, Mr Speaker, and to the Clerk of the National Assembly for the support rendered to it during the year. Your Committee is also indebted to all the witnesses who appeared before it for their co-operation in providing the necessary memoranda and briefs.

Your Committee is hopeful that the observations and recommendations contained in this report will go a long way in improving the energy, environment and tourism sectors in Zambia.

P P CHANDA, MP
CHAIRPERSON

June 2010
LUSAKA