

Republic of Zambia
Ministry of Tourism, Environment and Natural Resources

National Programme on Sustainable Consumption and Production for Zambia

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ABBREVIATIONS AND ACRONYMS

10YFP	10 Year Framework of Programmes
ABR	Anaerobic Baffle Reactor
ACCE	African Carbon Credit Exchange
African-10YFP	African 10 Year Framework Programme
AMCEN	African Ministerial Conference on Environment
ARSCP	African Roundtable on Sustainable Consumption and Production
CBD	Convention on Biological Diversity
CBE	Community Based Enterprise
CDC	Curriculum Development Centre
CEEEZ	Centre for Energy, Environment and Engineering of Zambia
CP	Cleaner Production
CPC	Cleaner Production Centre
CP	Cooperating Partners
CSD	Commission on Sustainable Development
CU	Commercial Utility
DEWATS	Decentralized Waste Treatment System
DoE	Department of Energy
DTF	Devolution Trust Fund
ECZ	Environmental Council of Zambia
ENR	Environment and Natural Resources
ENRMMP	Environment and Natural Resources Management and Mainstreaming Programme
ERB	Energy Regulations Board
ESP	Environment Support Programme
FNDP	Fifth National Development Plan
DENRM	Department of Environment and Natural Resources Management
DoI	Department of Industry
DTD	Department of Tourism Development
DWA	Department of Water Affairs
EPPCA	Environmental Protection and Pollution Control Act
ERB	Energy Regulations Board
FD	Forestry Department
FRA	Food Reserve Agency
GDP	Gross Domestic Product
GMA	Game Management Area
GRZ	Government of the Republic of Zambia
IPPP	Industrial Pollution Prevention Programme
JPOI	Johannesburg Plan of Implementation
KWh	Kilo Watt Hour
LA	Local Authority
LCC	Lusaka City Council
MACO	Ministry of Agriculture and Cooperatives
MCTI	Ministry of Commerce, Trade and Industry
MD	Maximum Demand
MENR	Ministry of Environment and Natural Resources
MTENR	Ministry of Tourism, Environment and Natural Resources
MFEZ	Multi Facility Economic Zone
MoFNP	Ministry of Finance and National Planning
MDG	Millennium Development Goals
M&E	Monitoring and Evaluation

MLGH	Ministry of Local Government and Housing
MMMD	Ministry of Mines and Minerals Development
MSD	Mines Safety Department
MTENR	Ministry of Tourism, Environment and Natural Resources
MW	Mega Watt
MWED	Ministry of Water and Energy Development
NAPA	National Adaptation Programme of Action on Climate Change
NCS	National Conservation Strategy
NEAP	National Environment Action Programme
NGO	Non Government Organisation
NISIR	National Scientific and Industrial Research
NORAD	Norwegian Agency for Development
NPE	National Policy on Environment
NAIS	National Agriculture Information Services
NSTC	National Science and Technology Council
NSWMS	National Solid Waste Management Strategy
NWASCO	National Water and Sanitation Council
PA	Performance Agreement
PGF	Planted Gravel Filter
PRSP	Poverty Reduction Strategy Paper
RBI	Regulation by Incentive
REA	Rural Electrification Authority
RET	Renewable Energy Technologies
ROADSIP	Road Sector Investment Programme
SAICM	Strategic Approach towards International Chemicals Management
SC	Steering Committee
SCP	Sustainable Consumption and Production
SI	Statutory Instrument
ToR	Terms of References
ToU	Time of Use
TWG	Technical Working Group
UNCED	United Nations Conference on Environmental Development
UNCHE	United Nations Conference on Human Environment
UNEP	United Nations Environment Programme
UNFCCC	United Nations Framework on Climate Change Convention
UN-DESA-DSD	United Nations Department of Economic and Social Affairs, Division of Sustainable Development
UNIDO	United Nations Industrial Development Organisation
UNZA	University of Zambia
WBCSD	World Business Council for Sustainable Development
WECSZ	Wildlife and Environmental Conservation Society of Zambia
WSS	Water Supply and Sanitation
WSSD	World Summit on Sustainable Development
ZABS	Zambia Bureau of Standards
ZACA	Zambia Consumer Association
ZACCI	Zambia Association of Chambers of Commerce and Industry
ZAM	Zambia Association of Manufacturers
ZARI	Zambia Agriculture Research Institute
ZAWA	Zambia Wildlife Authority
ZNFU	Zambia National Farmers Union

FOREWORD

EXECUTIVE SUMMARY

Zambia's social and economic development agenda is set out through Vision 2030. Vision 2030 articulates possible long-term alternative development policy scenarios at different points and it is operationalised through five-year development plans, starting with the Fifth National Development Plan (2006-2010) and annual budgets. Vision 2030 recognises development of policies consistent with sustainable environment and natural resource management principles; access to good quality basic human necessities such as shelter, titled land, health and education facilities and clothing for all; safe and secure social environment, among others, as part of the many fundamental aspirations of Zambians.

However, attainment of these fundamental aspirations requires Zambia to mainstream sustainable policies and programmes in its social and economic development agenda. This is particularly important because the majority of social and environmental impacts that the globe is facing can be attributed to products and services, fundamentally the unsustainable consumption and production patterns.

During the World Summit on Sustainable Development (WSSD) held in Johannesburg in 2002, the Heads of Governments recognized poverty eradication, changing consumption and production patterns, and protecting and managing the natural resource base for economic and social development as overarching objectives of, and essential requirements for sustainable development. The summit called for the implementation of initiatives to accelerate the shift towards sustainable consumption and production (SCP) patterns, thus de-linking economic growth from environmental degradation.

The Marrakech Process

The Marrakech Process is a follow-up to the WSSD held in Johannesburg in 2002, to initiate the implementation of sustainable consumption and production (SCP) projects and the development of a 10-Year Framework of Programmes on SCP (10YFP). It is a global multi-stakeholder process actioning the Johannesburg Plan of Implementation (JPOI) to support regional and national initiatives on SCP and, it is led by United Nations Environment Programme Division of Technology, Industry and Economics (UNEP-DTIE) and the United Nations Department of Economic and Social Affairs Division of Sustainable Development (UN-DESA DSD), with an active participation of national governments, development agencies, business and industry, civil society and other stakeholders.

One of the outcomes of the Marrakech Process is the creation of the Marrakech Task Forces. The Task forces broadly be categorized into four groups, namely: 1) Region-specific Task Forces; 2) Policy tools and programmes Task Forces; 3) Sector-specific Task Forces, and 4) Social and behavioural issues Task Forces. They comprise experts from developing and developed countries and, are voluntary initiatives led by governments, which in co-operation with other partners, commit themselves to carry out a set of concrete activities, conducted mainly at national or regional level, that promote a shift to SCP patterns.

The African 10 Year Framework Programme on SCP

The African 10-Year Framework Programme on Sustainable Consumption and Production (African-10YFP) has been development with the collaboration of UNEP and UN-DESA in close consultation with the Secretariats of the African Ministerial Conference on Environment (AMCEN) and the Secretariat of the African Roundtable on Sustainable Consumption and Production (ARSCP) which have been established and supported by UNEP. The African-10YFP was approved in March 2005 by AMCEN and one of the primary activities identified in the context of the regional follow-up on the African-10YFP is to assist African countries and cities to develop their programmes on sustainable consumption and production. So far, pilot programmes have been implemented in Mauritius, Tanzania, Egypt (Cairo) and, Mozambique (Maputo).

The Zambian National Programme on SCP has also been developed under the framework of pilot programmes.

Overview of policies, strategies and national plans

Hitherto, Zambia has developed a dynamic legal and institutional framework for management of its natural resources. This is despite the fact that Zambia's laws relating to the Environment and Natural Resources (ENR) management sector are spread over more than 20 international treaties and over 30 Acts of Parliament and responsibility dispersed amongst at least 10 line ministries. This poses a great challenge to government when it comes to implementation and enforcement.

Policies, strategies and national plans that have a strong bearing on SCP, include:

- Vision 2030
- Fifth National Development Plan 2006-2010
- Sixth National Development Plan 2011-2015
- Environment and Natural Resources Management and Mainstreaming Programme 2008-2012
- National Conservation Strategy, 1985
- National Solid Waste Management Strategy for Zambia, 2004
- Environmental Protection and Pollution Control Act of 1990
- The National Policy on Environment, 2007
- The National Policy on Agriculture, 2004
- The National Water Policy, 2010
- The National Energy Policy, 2008

The lead institution responsible for the development of environmental policy and legislation in Zambia is the Ministry of Tourism, Environment and Natural Resources (MTENR). Complementing ministries responsible for policy development and planning on specific sectors of the environment include the following ministries:

- Ministry of Agriculture and Co-operatives (MACO);
- Ministry of Livestock and Fisheries (MoLF);
- Ministry of Energy and Water Development (MEWD);
- Ministry of Communication and Transport (MCT);
- Ministry of Local Government and Housing (MLGH);
- Ministry of Commerce, Trade and Industry (MCTI), and
- Ministry of Mines and Minerals Development (MMMD).

ECZ is the principal enforcement agency of the country's environmental legislations, the EPPCA, and is therefore primarily responsible for environmental protection, pollution control and natural resource management. However, there are other government institutions and agencies responsible for enforcement of the other aspects of the environment. These include the Forestry Department (FD); the National Water and Sanitation Council (NWASCO); Mines Safety Department (MSD); Department of Tourism Development (DTD); Department of Environment and Natural Resources Management (DENRM); Department of Maritime and Inlands Waterways; Department of Water Affairs (DWA); Zambia Wildlife Authority (ZAWA), and the Local Authorities (LA).

Other institutions include:

- Energy Regulations Board (ERB);
- Rural Electrification Authority (REA);
- Zambia Bureau of Standards (ZABS);
- National Institute for Scientific and Industrial Research (NISIR), and
- National Science and Technology Council (NCTS).

Sustainable Development Priorities

National priorities for sustainable development have been synthesized from the policies, strategies and national plans. They include:

Strategy	Priority Areas	Relevance to SCP
Vision 2030	<ul style="list-style-type: none"> • Macro-economy • Water and sanitation • Infrastructure • Energy • Science and technology 	<ul style="list-style-type: none"> • Economic development is in line with the priority actions of the African 10-YFP on SCP. Vision 2030 addresses the economic key challenges that meet human basic needs such as providing adequate water and sanitation as part of the efforts aimed at reducing poverty
Fifth National Development Plan 2006-2010	<ul style="list-style-type: none"> • Macroeconomic policies • Sustainable environmental management • Agriculture – irrigation development and support • Meteorological information and services development • Infrastructure - development and implementation of Public Private Partnership Policy • Natural Resources - sustainable indigenous forest resource management • Tourism - tourism investment and enterprise promotion • Manufacturing – rural industrialization • Rural electrification • Bio-fuel development • Energy efficiency and conservation • Renewable and alternative energy development and promotion 	<ul style="list-style-type: none"> • The development of pro-poor economic policies to translate into the improvement of the competitiveness of Zambian industries. • The strategies on reversing environmental threats will improve industry's environmental competitiveness and also accelerate the country's sustainable development initiatives
Sixth National Development Plan 2011-2015	<ul style="list-style-type: none"> • Nutrition • Environment • Disaster Risk Management • Electricity • Renewable energy, alternative energy and biomass • Energy efficiency and management • Water Resources Management and Development • Crops • Agricultural Land Use • Mining • Forestry Management 	<ul style="list-style-type: none"> • Ensuring food security by improving yields through use of sustainable crop management practices • Ensuring food security by improving land management practices • Sustainable exploitation of mineral resources to increase national wealth • Sustainable forest and land management • Climate change mitigation and adaptation

Strategy	Priority Areas	Relevance to SCP
Environment and Natural Resources Management Mainstreaming Programme	<ul style="list-style-type: none"> • Capacity Development • Establishment of an Environmental Fund 	<ul style="list-style-type: none"> • The development of legislative tools, information and guidance will be fundamental in ensuring sustainable management of the environment and natural resources. • Mainstreaming of ENR sector in the development agenda will help advance sustainable consumption and production issues in the national plans. • Supported projects will contribute to poverty reduction and ultimately contribute to sustainable utilization of natural resources
National Conservation Strategy	<ul style="list-style-type: none"> • Energy • Water • Agriculture • Legal and institutional framework (Development of an environmental legislation recommended) 	This Strategy promotes the use of renewable energy resources as well as sustainable water use practices – strategies aimed at conserving resources
National Solid Waste Management Strategy	Solid waste	Sustainable waste management through source reduction, re-use, pretreatment and recycle and disposal
National Policy on Environment	Environmental planning	The policy ensures that environmental planning is integrated in development planning as a means of ensuring that the resources that are necessary for economic and development are available in such quantities and quality for use
National Agriculture Policy	<ul style="list-style-type: none"> • Sustainable and environmentally sound agricultural practices • Bio-diversity, conservation of aquatic eco-system and sustainable utilization of natural resource • Conservation farming 	The policy promotes sustainable agricultural practices through efficient use of resources such as water and energy in order to promote a competitive agricultural sector and ensure food security
Water Policy	<ul style="list-style-type: none"> • Water resources development • Integrated water resources management 	The strategies in the Water Policy ensure adequate provision of water for other industrial sectors and improve access to water by the general public
National Energy Policy	<ul style="list-style-type: none"> • Biomass • Electricity • Renewable energy sources • Energy management 	The policy is aimed at ensuring access to energy by the general public as well as industry. Furthermore, the promotion of renewable energy technologies will result in the conservation of energy for other productive uses such as mining and agriculture

SCP Programmes and Activities Implemented in Zambia

A number of programmes and activities have been implemented in Zambia in the sectors of commerce, trade and industry; energy; agriculture and, water and sanitation. Specific programmes include:

- Training industry in Cleaner Production (CP) methodology;
- Managing the demand side of electricity use;
- Promotion of renewable energy sources and energy efficient stoves;
- Rural electrification;
- Sustainable agriculture, and
- Urban water supply and sanitation.

Pilot activities for the promotion of SCP in Zambia

Six (6) projects have been proposed to be implemented on a pilot basis. These include five (5) within the four thematic areas as outlined by 10-YFP and one (1) crosscutting project.

The pilot projects were selected on the criteria of their appropriateness and linkages to the thematic areas as outlined by 10-YFP, and have been developed centred on host institution's core programmes and activities. Furthermore, the ability of the project to be driven by respective host institutions was critical to the selection of the pilot projects. It was realised that these pilot projects needed to be institutionalised within the host institutions and therefore be made part of the programmes and activities implemented. Thus, the fundamental consideration was that these pilot projects needed to benefit from the plans, finances and resources of the host institutions.

The proposed pilot projects are, thus:

Thematic Area	Sector	Proposed Project
I	Energy	Demand side management of energy
II	Water and sanitation	Demand side management of water use
III	Urban	Integrated waste management system
IV	Industrial	Establishment of a national cleaner production centre Sustainable agriculture
V	Crosscutting	Education for sustainable lifestyle

1.0 INTRODUCTION

By 2030, Zambia aspires to live in a strong and dynamic middle-income industrial nation that provides opportunities for improving the well being of all (GRZ, 2006)¹ and have a productive environment and well conserved natural resources base for sustainable socio-economic development. In order to achieve this vision, however, a number of measures need to be instituted so as to address the major environmental challenges the country faces. These challenges include, among others, deforestation, land degradation, water pollution and inadequate sanitation, air pollution and wildlife depletion.

Whilst these challenges are often further compounded by insufficient financial, human and technological resources, the majority of the environmental and social impacts can be attributed to products and services. The unsustainable patterns of consumption and production have resulted into widespread poverty and socio-economic injustices and disparities, and if left unchecked, may thwart our progress towards achieving the Millennium Development Goals (MDGs). According to WBCSD (2010)² rapid and continuing rise in the use of fossil fuel-based energy and an accelerating use of natural resources are continuing to affect key ecosystem services, threatening supplies of food, freshwater, wood fiber and fish. The communities around the world are further being impacted by frequent and severe weather disasters, droughts and famines (WBCSD, 2010).

There is a strong potential for Sustainable Consumption and Production (SCP) and Resource Efficiency (RE) measures to contribute to progress towards the Millennium Development Goals (MDGs). UNEP (2009)³ gives examples of contribution of SCP and RE to achievement of the MDGs.

In view of these environmental challenges, particularly in the context of climate change, achieving sustainable (low carbon) and resource efficient patterns of consumption and production becomes a great priority. There is an ever increasing need for humankind to adopt more sustainable lifestyles; using the resources more efficiently, increasing market supply and demand for sustainable products, and improving environmental education and communication on sustainable lifestyles. The Heads of State and Governments during the World Summit on Sustainable Development (WSSD) held in Johannesburg in 2002 recognized that poverty eradication, changing consumption and production patterns, and protecting and managing the natural resource base for economic and social development are overarching objectives of, and essential requirements for sustainable development (WSSD, 2002)⁴.

This report is the National Sustainable Consumption and Production (SCP) Programme for Zambia. It is expected that with the development of the National SCP programme for Zambia, it will endeavour to promote better understanding and appreciation of the critical issues related to SCP for policy and strategy formulation and ultimately assist the country in attaining economic and social development on a more sustainable basis.

1.2 Context for Sustainable Consumption and Production

The world faces a deeply interlinked economic, social and environmental crisis, which stems in large part from current unsustainable patterns of production and consumption (UNEP-DTIE, 2010)⁵. Major advances in the fight against extreme poverty from 1990 to 2005, appear to have stalled, and in some cases are going into reverse (UN, 2009)⁶. According to the UN (2009), between 55 million and 90 million more people than earlier on projected before the crisis were living in extreme poverty in 2009. In the same way, the encouraging trend in the eradication of hunger since the early 1990s was reversed in 2008, largely due to

higher food prices. The prevalence of hunger in the developing regions is on the rise, from 16% in 2006 to 17% in 2008 (UN, 2009).

WBCSD (2010) observes that the rising population levels and growing urbanization coupled with deteriorating ecosystems are threatening the supplies of food, freshwater, wood fiber and fish. More severe and frequent weather disasters such as droughts and famines are impacting communities all over the world while absolute consumption of resources has continued to increase with population and has even accelerated since 2000 with the rapid growth of emerging economies but yet in 2010, one billion people in the world are not able to meet their basic needs and lack access to vital goods and services.

There is an obvious case to rethink how to pursue economic growth in order to shift towards more sustainable ways of living that are within the carrying capacity of the world's natural systems and resources, and yet also meet the unfulfilled needs of poorer countries and communities.

In view of the current challenges such as rising populations and competition for scarce resources, it is clear that innovative and concerted efforts are needed to delink economic growth from natural resource extraction and environmental degradation. This calls for social and technological innovation, appropriate policies, public and private investments, education and awareness rising and private-sector management practices. Collectively, these efforts can achieve sustainable consumption and production (UNEP-DTIE, 2010).

Sustainable Consumption and Production (SCP) has been defined as *“The use of services and related products, which respond to basic needs and bring a better quality of life while minimizing the use of natural resources and toxic materials as well as the emissions of waste and pollutants over the life cycle of the service or product so as not to jeopardize the needs of future generations”* (UNEP-DTIE, 2010).

SCP is also a possibility to *“leapfrog”* to more resource efficient, environmentally sound and competitive technologies, bypassing inefficient, polluting, and ultimately costly phases of development. This could improve the competitiveness and the access of local products to the national, regional and international markets, increasing the possibilities of national revenues and economic growth, which in turn, if distribution policies and activities are in place, can contribute to poverty eradication (UNEP-DTIE, 2010).

1.3 The Preparation Process of the National SCP Program for Zambia

The process of developing the SCP programme for Zambia started with the establishment of a SCP Steering Committee (SC) and the Technical Working Group (TWG), whose members comprised stakeholders from government ministries and agencies, the private sector, the media, research and learning institutions and civil society organisations. Recognizing that the Environmental Council of Zambia (ECZ) is mandated to enforce environmental legislations of Zambia, the Environmental Protection and Pollution Control Act (EPPCA), and monitor pollution and natural resources degradation, the ECZ assumed the coordinating and secretariat role for the TWG.

An awareness 1-day workshop to develop Zambia's SCP programme was held at the Golfview Hotel in Lusaka on May 31st, 2010. This workshop brought together participants from government ministries and agencies, the private sector, the media, research and learning institutions and civil society organisations. The workshop proceedings were primarily designed to raise awareness on issues related to sustainable consumption and production, and agree on the institutional and organisational arrangement of developing the national programme. The objectives of the workshop were thus, to:

- (a) Initiate an active multi-stakeholder consultation process for the development of a national wide programme as part of the broader sustainable development strategy and action plans;
- (b) Improve understanding and appreciation about the importance of promoting SCP by the key stakeholders; and
- (c) Obtain institutional endorsement and championing of the process by the relevant stakeholders.

The SC comprises Permanent Secretaries from key stakeholder ministries. In order to ensure the smooth flow of information between the TWG and the SC, it was proposed during the workshop that the ECZ Director be a member of the SC. The reason for having this committee in place is that the higher the level of approval, the higher the chances of having the planned initiatives implemented. The composition of the SC is as follow:

- Ministry of Tourism, Environment and Natural Resources
- Ministry of Commerce, Trade and Industry
- Ministry of Finance and National Planning
- Ministry of Energy and water Development
- Ministry of Agriculture and Cooperatives
- Ministry of Local Government and Housing
- Office of the Vice President
- Environmental Council of Zambia

Furthermore, the Technical Working group was constituted by the following institutions:

- Environmental Council of Zambia (Secretariat)
- Zambia Agriculture Research Institute (ZARI)
- Chemistry Department – UNZA
- Forestry Department (FD)
- Zambia Wildlife Authority (ZAWA)
- Department of Water Affairs (DWA)
- Lusaka City Council (LCC)
- Department of Energy (DoE)
- Wildlife Environmental Conservation Society of Zambia (WECSZ)
- Zambia Association of Manufacturers (ZAM)
- Ministry of Agriculture and Cooperatives (MACO)
- Department of Industry (DoI)
- Centre for Energy, Environment and Engineering of Zambia (CEEEZ)

The process of developing the National SCP Programme for Zambia was outsourced to a local national consultant. The local national consultant reported to the TWG. The Terms of References (ToR) for the consultant included the following:

- Review the most relevant national assessment, strategy and action plan documents and identify the key priorities that are related to the promotion of sustainable consumption and production.
- Conduct bilateral consultation with selected key stakeholders in order to get their inputs towards the identification of the key activities that need to be undertaken and the possible mechanisms to implement and monitor them.

- Make a comparative analysis of the identified priority areas and activities with the priorities of the African 10-YFP and the available implementation mechanisms under the Marrakech process.
- Identify 3-5 priority areas with related objectives and proposed targets, and propose pilot activities that could be further developed and implemented in the selected areas together with a monitoring mechanism.
- Prepare a draft Programme document for the country based on the outcome of the survey, consultation and analysis.

1.4 Arrangement of the Report

Chapter 1 gives the introduction. It presents the general background information on SCP concept and processes as well as the process followed in Zambia when developing this SCP National Programme.

Chapter 2 sets out the national context for Zambia; describing the general climate and hydrology, vegetation, biodiversity, fisheries and wildlife, demography, including the main sectors of social and economic development.

Chapter 3 contextualizes the global and regional SCP activities and processes, starting with the United Nations Conference on Human Environment (UNCHE) through to the World Summit on Sustainable Development (WSSD) and links these processes to the processes in Zambia.

Chapter 4 discusses the policies, legislations and plans for Zambia. The policies, legislations and plans discussed under this section have linkages in promoting SCP programmes and/ or activities. These include, among others, Vision 2030, the Sixth National Development Plan (SNDP), the National Policy of Environment (NPE), the National Solid Waste Management Strategy for Zambia (NSWMS) and the Environment and Natural Resources Management Mainstreaming Programme (ENRMMP).

Chapter 5 discusses development priorities in Zambia that have connections to sustainable consumption and production. The section also presents activities and programmes both on-going and/ or completed. These activities and programmes are from energy, water and sanitation, agriculture and industry, commerce and trade sectors.

Chapter 6 presents the proposed projects to be implemented on a pilot basis to help institutionalise SCP activities and programmes in the social and economic development agenda of Zambia. A total of six (6) projects are proposed, of which five (5) will be implemented in the sectors of energy, water and sanitation, urban development and industry, commerce and trade. One of these proposed projects, however, will be mainstreamed under education for sustainable lifestyles.

2.0 THE NATIONAL CONTEXT

Located in Southern Africa, Zambia is a land-linked country with a total area of 752,614 km². Zambia lies between latitudes 8° and 18°S, and longitudes 22° and 34°E. It is bordered by the Democratic Republic of Congo, Tanzania, Malawi, Mozambique, Zimbabwe, Botswana, Namibia and Angola. The whole country lies on the Central Africa Plateau with altitudes ranging between 1000 and 1600 metres above sea level, giving it a moderately cool sub-tropical climate with three distinct seasons: the cool and dry (April-August); the hot and dry (August-November), and the hot and wet (November-April).

Zambia consists mainly of high plateaus with some hills and mountains, dissected by river valleys. Most of Zambia is located within the savannah belt of Southern Africa with a well-defined unimodal distribution of rain.

The country is divided into 73 administrative districts and nine (9) provinces. Figure 1 is the generalised map of Zambia.

2.1 Climate and Hydrology

Zambia's altitude puts it in the broad belt of temperate highlands with temperatures ranging from 16°C to 27°C in the cool and dry season and from 27°C to 38°C in the hot and wet season.

Rainfall varies from 700 mm per annum in the south to 1500 mm per annum in the north and most of it is concentrated over the period of November to March. Precipitation and the length of the growing season generally decrease from North to South.

The country is drained by two major river basins, namely the Zambezi basin in the south covering about three-quarters of the country; and the Congo basin in the north covering about one-quarter of the country. The Kabompo, Kafue, Luangwa, and the Zambezi rivers constitute the Zambezi basin while the Congo basin is made of the Chambeshi/Luapula watershed. These rivers, together with several large lakes such as Mweru, Bangweulu, Kariba and Tanganyika, provide Zambia's most important water, fisheries, and tourism resources.

2.2 Vegetation

Zambia's vegetation is predominantly open *Miombo* woodland. This vegetation type covers about 80 per cent of the country. However, other varieties of forest, woodland and grassland exist with their area coverage and type being most influenced by altitude and rainfall. The vegetation supports a rich diversity of wildlife.



Figure 1: Map of Zambia

2.3 Biodiversity

Zambia's biological diversity is protected in 19 national parks, 35 Game Management Areas (GMAs) and 488 national and local forest reserves (of which 180 are national forests and 308 are local forests), covering 8%, 22% and 9.6% of the country's land area, respectively. Unfortunately, the state of the biological diversity in majority of the national parks and forest reserves is at risk of destruction. A total of 87 (48%) of the national forest reserves and 167 (54%) of the local forests are at various degrees of human encroachment. Furthermore, 11 (58%) of the 19 national parks are either declining or degraded in status due to poaching especially in the GMAs.

2.4 Fish and Wildlife

Fish and wildlife are some of the country's most valuable natural resources. The rivers and lakes support about 156 fish species. There are about 190 species of wild animals in Zambia and a large diversity of birds, reptiles and insects.

2.5 Population

The population, which is predominantly Christian, is currently estimated to be about 11.7 million with an annual growth rate of about 2.9%. Population is concentrated in the urban areas, on the Copperbelt and Lusaka as well as the agricultural zone (southern and central) along the line of rail.

2.6 Main Sectors of the Economy

The country is endowed with abundant natural resources, which include copper, cobalt, zinc, lead, coal, emeralds, gold, silver, uranium, water and fertile land. The main industries are mining, transport, construction, manufacturing and agriculture.

2.6.1 Mining

Mining and associated processing is the backbone of Zambia's economy. The copper mines of Zambia are amongst the richest in the world. Zambia is also among the world's largest producers of cobalt. Other minerals extracted are gold, silver and gem (quality emeralds). The mining sector is projected to grow by 13.1% in 2010, against the 2.4% attained in 2008. Copper production is expected to reach 662,000 metric tonnes in 2010 compared to 575,000 metric tonnes in 2008 (MoFNP, 2009)⁷.

2.6.2 Agriculture sector

Zambia has potential to expand agricultural production given the vast resource endowment in terms of land area of 75 million hectares (752,000 km²) coupled with the abundant surface water potential for irrigation of farmlands, good rainfall, conducive temperature, rich soils and abundant sunshine. Some 58% (42 million hectares) is classified as medium to high potential for agricultural production, with rainfall ranging between 800 mm to 1400 mm annually and suitable for the production of a broad range of crops, fish, and livestock. It is estimated that only 14% of total agricultural land is currently being utilized. Furthermore, of the country's irrigation potential conservatively estimated at 423,000 hectares, only about 50,000 hectares are currently irrigated.

Farming in Zambia is predominantly rain-fed with maize being the main food and cash crop. The agricultural sector remains underdeveloped and vulnerable to weather fluctuations despite the sector engaging some 75% of Zambia's working population, largely in subsistence farming. Nonetheless, the sector is expected to grow by 5.2% in 2010 compared to 1.9 per cent in 2008 (MoFNP, 2009). This growth is on account of the bumper maize harvest in 2010, the largest harvest Zambia has recorded in ten years. Maize production rose by 26.7% to 1.9 million metric tonnes from 1.5 million metric tonnes recorded in 2008 (MoFNP, 2009).

Water is in abundance, with some 45 per cent of Southern Africa's water resources found in Zambia. Untapped potential also exists in the irrigation of farmland. Good rainfall makes agriculture a very attractive sector for investment in Zambia. Therefore, Zambia has a resource endowment for development of a wide range of crops, livestock, and fish given the diversity of its agro-ecological zones.

2.6.3 Construction sector

Zambia's construction sector is fairly robust as a result of increased public and commercial infrastructure investments and continued high demand for housing. Spurred on by the mining sector, demand for housing has continued to increase as the country's middle class grows. The country also has a very robust Road Sector Investment Program (ROADSIP) in which both local and international road construction companies participate with the emphasis on "quality roads constructed".

2.6.4 Manufacturing sector

Manufacturing is one of the top performers and a priority growth sector in the Zambian economy and contributes about 11% to the National Gross Domestic Product (GDP) and 10 per cent to employment. According to the commercial trade and industrial policy (MCTI, 2005)⁸, the manufacturing sector is divided into six priority sectors, namely Wood and wood products, Garments and textiles, Gemstones, Leather and leather products, Engineering products and Food processing.

Manufacturing in Zambia is one of the most attractive sectors for investment since all major inputs (raw materials, labour force, abundant land, good financial institutions and financial systems, enabling environment, policy and legislations) are locally available. Furthermore, additional measures have been put in place to support growth within the sector including the creation of Multi Facility Economic Zones (MFEZs), credit provision and industrial skills training. Potential areas of investment include cement production, textiles and clothing apparels, agro-processing, processed and refined foods, leather products, wood processing, plastics, vehicle parts and assembly, chemicals, refining of petroleum, and metal and engineering works. There is exemption on customs duty on the importation of most capital machinery and equipment used for manufacturing while many other incentives exist for the sector.

2.6.5 Tourism sector

According to the Zambia Development Agency (ZDA)⁹, the tourism sector is one of the largest foreign exchange earners in Zambia and is a major source of economic growth. Tourism investment opportunities exist in all the 19 National parks and 34 game areas as well as the 23 million hectares devoted to the conservation of a variety of animals. Business opportunities further exist in tourism transport such as air charters, car hire, travel agencies and tour operations management, sports, game ranching, adventure holiday packages and organized tours.

Despite all these investment prospective, the tourism sector's potential has not been fully exploited due to, among others, inadequate marketing of Zambia as a tourism destination and ineffective environmental planning and policy implementation as well as ineffective coordination among government agencies. Other factors that hamper the growth of the sector include the high cost of capital investment, the poor infrastructure as well as regulatory and institutional barriers.

3.0 THE GLOBAL PROCESSES ON SUSTAINABLE CONSUMPTION AND PRODUCTION

The United Nations Conference on Environment and Development (UNCED) meeting in Rio de Janeiro (3 to 14 June), 1992 reaffirmed the Declaration of the United Nations Conference on the Human Environment (UNCHE) adopted at Stockholm on 16 June 1972, and sought to build upon it with the goal of establishing a new and equitable global partnership through the creation of new levels of cooperation among states, key sectors of societies and people and declared to work towards fulfilment of the 27 principles, as adopted by the Conference, for the purposes of developing international agreements which respect the interests of all and protect the integrity of the global environmental and developmental system.

A follow-up to UNCED was made through the Rio+10 Conference, the World Summit on Sustainable Development (WSSD), held in Johannesburg in 2002. WSSD was convened to primarily discuss sustainable issues.

Concern over unsustainable patterns of consumption and production was reinforced by the 2002 World Summit on Sustainable Development (WSSD) in Johannesburg, to which Chapter III of its Plan of Implementation was devoted.

Recognizing that consumption and production patterns are increasingly global and that international co-operation is needed to address them in cost-effective ways, the Johannesburg Summit called for the *“...development of a 10-year framework of programmes in support of regional and national initiatives to accelerate the shift towards sustainable consumption and production patterns that will promote social and economic development within the carrying capacity of ecosystems”*. This would require, among others, the following actions:

- Identify specific activities tools, policies, measures and monitoring and assessment mechanisms, including, where appropriate, life-cycle analysis and national indicators;
- Adopt and implement policies and measures aimed at promoting SCP patterns, applying, inter-alia, the polluter-pays principle;
- Develop production and consumption policies to improve products and services;
- Develop awareness- raising programmes on the importance of sustainable consumption and production patterns, particularly among youth and relevant segments in all countries, through inter-alia, education, public and consumer information, advertising and other media;
- Develop and adopt consumer information tools to provide the information related to SCP, and
- Increase eco-efficiency, with financial support from all sources, where mutually agreed, for capacity-building and technology transfer.

SCP programmes has huge potential of contributing towards the achievement of the MDGs. The implementation of SCP and RE programmes has direct positive impacts on achievement of Goals 1, 4, 5 and 7 (UNEP, 2009). The contribution of SCP and RE programmes towards achieving MDGs are summarised in table 1.

Table 1: Contribution of SCP and RE towards achieving MDGs

MDG	Contribution of SCP and RE
<p>Goal 1 Eradicate extreme poverty and hunger</p>	<ul style="list-style-type: none"> Greater efficiency in resource use over the life cycle of goods and services results in improved productivity and reduced costs. Growth in consumer demand for sustainable products can provide sustainable producers in developing countries with access to new markets, an opportunity for job creation and price premiums for their products, all of which can facilitate the transition towards a green economy. Better management of resources and agricultural land through more sustainable farming practices will result in improved land productivity and thus greater availability of food.
<p>Goal 4 Reduce child mortality</p>	<ul style="list-style-type: none"> Improved health will be achieved through access to clean water (which will result from water supply infrastructure programmes and protection of water resources), clean energy (from decentralized renewable energy programmes) and improved nutrition (from sustainable agriculture projects)
<p>Goal 5 Improve maternal health</p>	
<p>Goal 7 Ensure environmental sustainability</p>	<ul style="list-style-type: none"> Improved water treatment infrastructure, pollution prevention programmes, education on water resource protection, and programmes focusing on management of industrial wastewaters will increase the resource availability for drinking and improving sanitation.

Adapted from UNEP (2009)

Having realised the importance of SCP and RE programmes in contributing to the achievement of the MDGs and, as a follow-up to the WSSD, the Marrakech Process was initiated. The Marrakech Process supports the implementation of sustainable consumption and production (SCP) projects and the development of a 10-Year Framework of Programmes to (UNEP, 2009)¹⁰ “...accelerate a shift towards sustainable consumption and production...thus promoting social and economic development within the carrying capacity of ecosystems by de-linking economic growth from environmental degradation”. This initiative is expected to result in a global framework for action on SCP that countries can commit to and thus drive a shift towards sustainable consumption and production patterns.

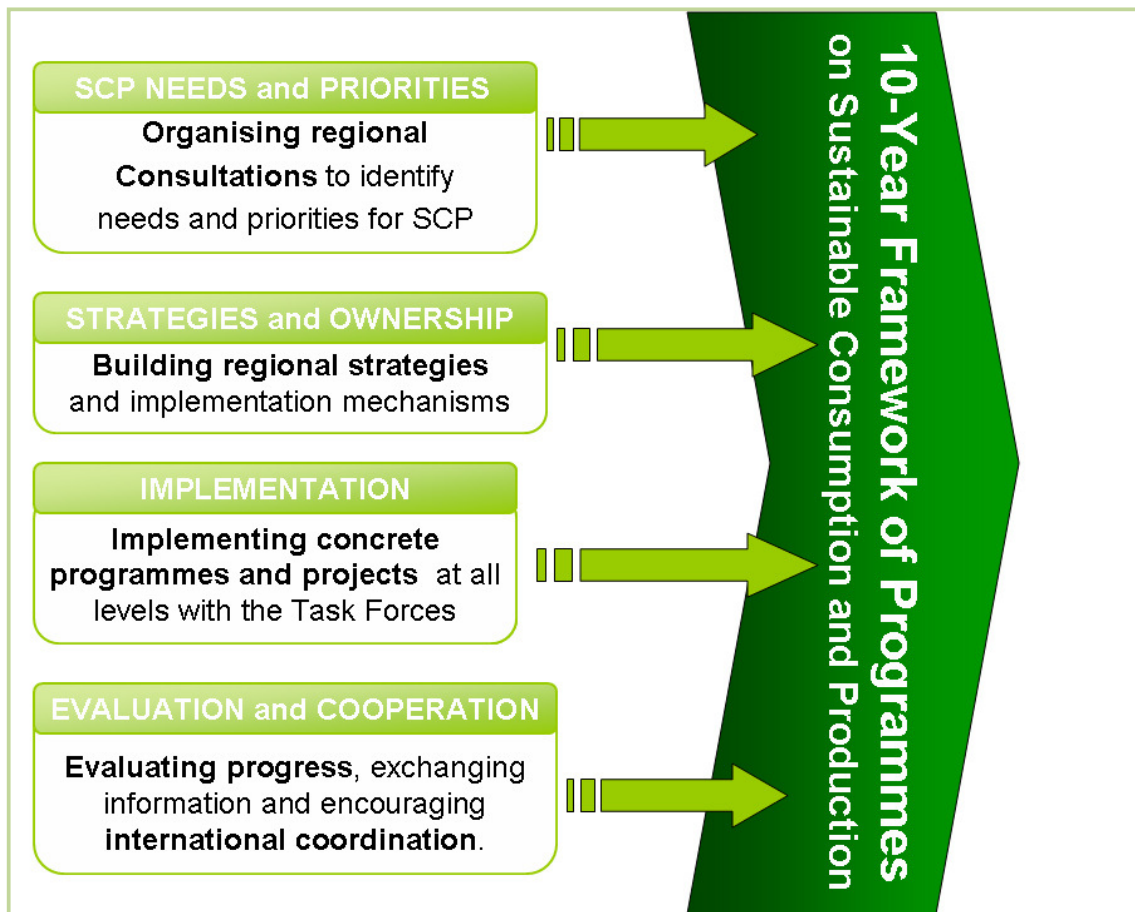
As a way of carrying forward this process and particularly localizing these processes within the African context, the African 10-year Framework of Programmes (African-10YFP) has been developed.

3.1 The Marrakech Process

The Marrakech Process is an international effort to formulate the 10-year Framework of Programmes on Sustainable Consumption and Production (SCP). It is a global multi-stakeholder process to support the implementation of SCP and the elaboration of a 10-Year Framework of Programmes on SCP (10YFP). The proposal for the 10YFP will be reviewed by the Commission on Sustainable Development (CSD) during the 2010/11 two-year cycle. The Process responds to the call of the World Summit on Sustainable Development (WSSD) Johannesburg Plan of Implementation (JPOI) to support regional and national initiatives to accelerate the shift towards SCP patterns, thus de-linking economic growth from environmental degradation (UNEP-DTIE/ UN-DESA, Undated)¹¹.

The Marrakech Process is more than just a series of meetings. The Process promotes the implementation of SCP policies and measures at the national and regional levels.

The United Nations Environment Programme (UNEP) and the United Nations Department of Economic and Social Affairs Division of Sustainable Development (UN-DESA DSD) are the leading agencies of this global process, with an active participation of national governments, development agencies, business and industry, civil society and other stakeholders. The first meeting devoted to developing the 10YFP took place in Marrakech, Morocco in June 2003, hence the name. The development of the 10YFP consists of specific phases as summarized under figure 2.



3.1.1 Marrakech Task Forces

Marrakech Thematic Task Forces have been created in order to support the implementation of concrete projects, and to focus on specific themes of SCP. The Task Forces have been created with the participation of experts from developing and developed countries and, are voluntary initiatives led by governments, which in co-operation with other partners, commit themselves to carrying out a set of concrete activities, conducted mainly at national or regional level, that promote a shift to SCP patterns.

So far, seven Task Forces have been created (UNEP-DTIE/ UN-DESA, Undated):

- Cooperation with Africa (led by Germany)
- Sustainable Products (led by United Kingdom)
- Sustainable Lifestyles (led by Sweden)
- Sustainable Public Procurement (led by Switzerland)
- Sustainable Tourism (led by France)
- Sustainable Buildings and Construction (led by Finland)
- Education for Sustainable Consumption (led by Italy)

Nonetheless, the Marrakech Task Forces can broadly be categorized into four groups, namely: 1) Region-specific Task Forces; 2) Policy tools and programmes Task Forces; 3) Sector-specific Task Forces, 4) Social and behavioural issues Task Forces (See Box 1 for the brief description of the objectives of the Marrakech Task Forces).

3.2 The African Ten-Year Framework Programme on SCP

Paragraph 15 of the JPOI emphasized the need to develop the 10-Year Framework of Programmes (10-YFP) in support of regional and national initiatives that accelerate the shift towards sustainable consumption and production, thus:

“...Encourage and promote the development of a 10-year framework of programmes in support of regional and national initiatives to accelerate the shift towards sustainable consumption and production to promote social and economic development within the carrying capacity of ecosystems by addressing and, where appropriate, delinking economic growth and environmental degradation through improving efficiency and sustainability in the use of resources and production processes and reducing resource degradation, pollution and waste. All countries should take action, with developed countries taking the lead, taking into account the development needs and capabilities of developing countries, through mobilization, from all sources, of financial and technical assistance and capacity-building for developing countries (UN-DESA-DSD, 2005)¹² ...”

The Development of the African 10-Year Framework Programme on Sustainable Consumption and Production (African-10YFP) was facilitated by UNEP and UN-DESA in close consultation with the Secretariats of the African Ministerial Conference on Environment (AMCEN) and the Secretariat of the African Roundtable on Sustainable Consumption and Production (ARSCP) which have been established and supported by UNEP. The African-10YFP was approved in March 2005 by AMCEN.

One of the key activities that have been identified in the context of the regional follow-up on the African-10YFP is to assist African countries and cities to develop their programmes on sustainable consumption and production. The overall goal of this component is to promote the further elaboration and implementation of the African-10YFP at national and city level and generate region-specific experience that could be replicated in other countries and cities within the region.

Box 1: Summary description of the objectives of the Marrakech Task Forces

Regional specific Task Forces

Cooperation with Africa – the fundamental aim is to encourage and support African countries in the integration of SCP in existing plans and programmes and in developing national, sub-regional and/ or regional action plans on SCP that allow them to attain and sustain real-term economic growth while adopting sustainable patterns of consumption and production in the early stages. Under its current work plan, the Task Force focuses on eco-labelling for Africa and supporting national action plans on SCP.

Policy tools and programmes Task Forces

Sustainable Products – the main objectives are to raise awareness of product policy as a means of achieving international development and environmental objectives; to seek common priorities and opportunities for practical cooperation in encouraging more innovation on product eco-design; and to establish and participate in open and transparent processes for improving product performance.

Sustainable Public Procurement – the main objective is to promote and support the implementation of sustainable public procurement by developing tools and supporting capacity building in both developed and developing countries. The activities include the development of a practical toolkit to provide an easy start for the implementation of the concept of sustainable public procurement.

Sector-specific Task Forces

Sustainable Tourism – the main objective is the implementation of activities that promote sustainable tourism, providing supporting tools and existing initiatives that may inspire pilot projects and good practice in other countries. The Task Force focuses on three main topics: tourism and climate change, biodiversity, and protection of cultural and natural heritage.

Sustainable Buildings and Construction – the main aim is to develop local and national policies and legislation to secure the sustainability of construction, use and maintenance of the built environment. The Task Force addresses the question on how public policies and legislation can promote energy efficiency, energy savings and use of renewable energy in the built environment. The activities include mapping out the baseline condition and internal exchange of best and worst practices.

Social and behavioural issues

Education for Sustainable Consumption – the objective is to achieve progress in introducing sustainable consumption and production issues in particular into formal curricula with the aim of supporting the Marrakech Process through initiatives, activities and pilot projects in this sector. A special focus of the Task Force is on the Mediterranean region, sharing its experiences globally.

Sustainable Lifestyles – the main goal is to develop and support the implementation of sustainable policies and projects that enable the adoption of sustainable lifestyles. The main activities are to support the implementation of projects at the sub-regional and national level; to develop tools and capacity building on education and communication for sustainability; and to assemble results and inspiring examples on sustainable lifestyle.

As a way of linking into this process and taking the SCP programme forward, Zambia has instituted a number of policies to promote sustainable consumption and production. Unfortunately, these actions are often neither coherent nor driven by an integrated programme - they are isolated initiatives. Consequently, isolated initiatives, no matter how innovative, stand very little chance of bringing about wholesome changes in consumption and production patterns. Having realized this, Zambia has initiated the process to develop an integrated national programme on SCP.

3.3 The Sustainable Consumption and Production National Programme for Zambia

As part of the implementation mechanism under the International Marrakech Process on the 10-YFP, the Federal Government of Germany is the lead agency on Cooperation with Africa. One of the key activities that have been identified in the context of the German Taskforce on Cooperation with Africa and the Regional follow-up on the African-10YFP is to assist a few African countries and cities to develop their programmes on sustainable consumption and production.

The overall objective of this component of activity is to promote the further elaboration and implementation of the African-10YFP at national and city level and generate region-specific experience that could be replicated in other countries and cities in the region.

The activities to be carried out under this component are expected to lead to the following key outputs:

- Improved understanding and appreciation about the importance of promoting sustainable consumption and production by the key stakeholders;
- Development of a national or city-wide Programme for the pilot countries/cities through an active multi-stakeholder consultation process and with a particular focus on implementable activities;
- Institutional endorsement and championing of the programme document by the relevant national and local government institutions as part of the broader sustainable development strategy and action plans;
- Additional input to the improvement of the existing methodology and approach in developing national and city-wide programmes on SCP.

Based on the criteria that have been developed for the selection of the pilot countries, Mauritius and Tanzania were selected as pilot countries while Cairo (Egypt) and Maputo (Mozambique) were selected as pilot cities for developing SCP programmes.

The development of the National SCP Programme for Zambia is being undertaken under the global context of pilot countries.

4.0 OVERVIEW OF LEGISLATIONS, POLICIES, STRATEGIES AND NATIONAL PLANS

Not until 1985, Zambia had no coherent and comprehensive policy framework and legislation for the coordination of environmental management and monitoring the utilization of natural resources. Thereafter, important policy and institutional developments took place, which included the adoption of the National Conservation Strategy (NCS), the enactment of the Environmental Protection and Pollution Control Act (EPPCA) and the subsequent establishment of the Environmental Council of Zambia (ECZ) and the Ministry of Environment and Natural Resources (MENR) in 1992 as coordinating institutions.

The establishment of these institutions has led to the development of major programmes such as the National Environmental Action Plan (NEAP) in 1994, the Environmental Support Programme (ESP), the National Adaptation Programme of Action on Climate Change (NAPA, 2007) and the Environment and Natural Resources Management and Mainstreaming Programme (ENRMMP, 2008).

The legislations, policies, strategies and plans are described hereunder.

4.1 Environmental Protection and Pollution Control Act of 1990

GRZ (1985) proposed a number of measures to prudently manage the environment which included the formulation of a national legislation on environment and the establishment of an institution for environmental protection in Zambia. NCS was later revised into a new programme, the National Environmental Action Plan (NEAP) which was an investment plan for the environmental sector. The NEAP identified deforestation, wildlife depletion, land degradation, air pollution and water pollution and inadequate sanitation as the five major environmental concerns and priority areas for investment in Zambia (MENR, 1994)¹³.

The EPPCA, the principal law on environment in Zambia, established the Environmental Council of Zambia (ECZ), an institution which is premised on the polluter pays principle. Subsidiary legislations of the EPPCA include: 1) The Waste Management Regulations, Statutory Instrument (SI) No. 71 of 1993; 2) The Water Pollution Control Regulations, SI No. 72 of 1993; 3) The Pesticides and Toxic Substances, SI No. 20 of 1994; 4) The Air Pollution Control Regulations, SI No. 141 of 1996; 5) The Environmental Impact Assessment, SI No. 20 of 1997; 6) The Hazardous Waste Management Regulations, SI No. 125 of 2001, and 7) The Ozone Depleting Substances Regulations, SI 27 of 2000.

Other legislations with a bearing on the environment include statutes on water, wildlife, forestry, mines and minerals, health, town planning, energy, agriculture, commerce, trade and industry.

In addition to the local legal instruments, Zambia is party to several international conventions and agreements in the environment sector such as the Convention on Biological Diversity (CBD); the Ramsar Convention; the Basel Convention, the Rotterdam Convention, the Stockholm Convention, and the United Nations Framework on Climate Change (UNFCCC). Table 2 presents selected international environmental agreements to which Zambia is a party. The table also gives the dates onto which these international agreements came into force.

Table 2: Selected International Environmental Agreement to which Zambia is a Party

Agreement	Objectives
Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and Their Disposal (Basel Convention) (Came into force on 5th May 1992)	<ul style="list-style-type: none"> • To reduce transboundary movements of wastes subject to the Convention to a minimum consistent with the environmentally sound and efficient management of such wastes; • To minimize the amount and toxicity of wastes generated and ensure their environmentally sound management as closely as possible to the source of generation, and • To assist LDCs in environmentally sound management of the hazardous and other wastes they generate
Convention on Biological Diversity (Came into force on 29th December 1993)	To develop national strategies for the conservation and sustainable use of biological diversity
Convention on the International Trade in Endangered Species of Wild Flora and Fauna (CITES) (Came into force on 1st July 1975)	To protect certain endangered species from overexploitation by means of a system of import/export permits
Convention on Wetlands of International Importance Especially as Waterfowl Habitat (Ramsar) (21st December 1975)	To stem the progressive encroachment on and loss of wetlands now and in the future, recognizing the fundamental ecological functions of wetlands and their economic, cultural, scientific, and recreational value
Montreal Protocol on Substances That Deplete the Ozone Layer (Came into force 1st January 1989)	To protect the ozone layer by controlling emissions of substances that deplete it
Treaty Banning Nuclear Weapon Tests in the Atmosphere, in Outer Space, and Under Water (Came into force on 10th October 1963)	<ul style="list-style-type: none"> • To obtain an agreement on general and complete disarmament under strict international control in accordance with the objectives of the United Nations; • To put an end to the armaments race and eliminate incentives for the production and testing of all kinds of weapons, including nuclear weapons
United Nations Convention on the Law of the Sea (LOS) (Came into force on 16th November 1994)	<ul style="list-style-type: none"> • To set up a comprehensive new legal regime for the sea and oceans; • To include rules concerning environmental standards as well as enforcement provisions dealing with pollution of the marine environment
United Nations Convention to Combat Desertification in Those Countries Experiencing Serious Drought and/or Desertification, Particularly in Africa (Came into force on 26th December 1996)	<ul style="list-style-type: none"> • To combat desertification and mitigate the effects of drought through national action programs that incorporate long-term strategies supported by international cooperation and partnership arrangements
United Nations Framework Convention on Climate Change (Came into force on 21st March 1994)	<ul style="list-style-type: none"> • To achieve stabilization of greenhouse gas concentrations in the atmosphere at a low enough level to prevent dangerous anthropogenic interference with the climate system

Source: <http://www.umsl.edu/services/govdocs/wofact98/appd.htm> (01042011)

4.2 Policies

4.2.1 Vision 2030

The Vision 2030 articulates possible long-term alternative development policy scenarios at different points through to the target year 2030. The Vision is the basis for interface by all sectors and provides direction for short- and medium-term plans. The Vision is operationalized through the implementation of five national development plans, beginning with the Fifth National Development Plan, covering the period 2006-2010. Vision 2030 recognises development of policies consistent with sustainable environment and natural resource management principles; access for all to good quality basic human necessities such as shelter, titled land, health and education facilities and clothing; safe and secure social environment, among others as part of the many fundamental aspirations of Zambians.

According to the Vision 2030 (MoFNP, 2006), the Zambian people's long term vision is to become "...A Prosperous Middle Income Nation by 2030". To achieve middle-income status, Zambia's socio-economic development objectives are:

- To attain and sustain annual real economic growth rates of between 6 and 10 per cent;
- To attain and maintain a moderate inflation rate of 5 per cent;
- To decelerate the annual population growth rate from its 2005 rate of 2.9 per cent to a rate of less than 1.0 per cent over the next 25 years;
- To reduce national poverty head count to less than 20 per cent of the population;
- To reduce income inequalities measured by a Gini coefficient of less than 40; and
- To provide secure access to safe potable water sources and improved sanitation facilities to 100 per cent of the population in both urban and rural areas.

4.2.2 The National Policy on Environment, 2007

The National Policy on Environment (NPE) is the principal policy that coordinates environmental management in Zambia. The NPE is designed to create a comprehensive framework for effective natural resource utilization and environmental conservation which will be sensitive to the demands of sustainable development (MTENR, 2007)¹⁴ and has the following specific objectives:

- To promote the sound protection and management of Zambia's environment and natural resources in their entirety, balancing the needs for social and economic development and environmental integrity to the maximum extent possible while keeping adverse activities to the minimum;
- To manage the environment by linking together the activities, interests and perspectives of all groups, including the people, non-governmental organizations and government at both central and decentralized local levels;
- To accelerate environmentally and economically sustainable growth in order to improve health, sustainable livelihoods, income and living conditions of the poor majority with greater equity and self-reliance;

- To ensure broad-based environmental awareness and commitment to enforce environmental laws and to ensure the promotion of environmental accountability;
- To build individual and institutional capacity to sustain the environment;
- To regulate and enforce environmental laws; and
- To promote the development of sustainable industrial and commercial processes having full regard for environmental integrity.

Other objectives and strategies contained in the NPE are the sector-specific objectives for agriculture, tourism, mining, education, fisheries, forestry, wildlife, water, industrial and commercial, energy and heritage.

4.2.3 The National Policy on Agriculture, 2004

The vision for the agricultural sector is *“to promote development of an efficient, competitive and sustainable agricultural sector, which assures food security and increased income”*. Some of the specific priority objectives that the National Policy on Agriculture has set include the following (MACO, 2004)¹⁵:

- To ensure national and household food security through an all-year round production and post-harvest management to adequate supplies of basic foodstuffs at competitive costs;
- To contribute to sustainable industrial development by providing locally produced agro-based raw materials;
- To increase agricultural exports thereby enhancing the sector’s contribution to the national balance of payments;
- To generate income and employment through increased agriculture production and productivity, and
- To ensure that the existing agricultural resource base is maintained and improved upon.

The policy also aims at promoting sustainable and environmentally sound agricultural practices by focusing on:

- Improved use of available water resources by greater utilization and adoption of irrigation where it is economically viable;
- Promotion of sustainable and cost effective agricultural practices;
- Promotion of environmental-friendly farming systems such as conservation farming, afforestation, and the use of green manure, and
- Agro-forestry.

These measures can make a major contribution to improving the performance of the agricultural sector and ensuring adequate food supplies by enhancing farmer productivity on a sustainable basis.

4.2.4 The National Water Policy, 2010

The National Water Policy envisions *“to optimally harness water resources for the efficient and sustainable utilization of this natural resource to enhance economic productivity and reduce poverty”* (MEWD, 2010)¹⁶.

In order to achieve the national goal of increasing accessibility to reliable safe water by all sectors of the economy the policy addresses two broad categories of water resources management and development. The major outcome of the policy is to improve the management of water resources, institutional coordination and defined roles and responsibilities. The policy encourages the use of water resources in an efficient and equitable manner consistent with the social, economic and environmental needs of present and future generations.

4.2.5 The National Energy Policy, 2008

The National Energy Policy aims to create conditions that will guarantee the availability of adequate supply of energy from various sources, which are dependable, at the lowest economic, financial, social and environmental cost consistent with national development goals (MEWD, 2008)¹⁷.

Some of the goals in the energy sub-sectors include:

- Improve the standard of living by switching from low quality energy sources (biomass energy) to better quality energy resources such as electricity, petroleum products, biofuels and biogas which can be used as household fuels.
- Ensure environmentally sustainable exploitation of the biomass resource and introduction of new sources such as bio-fuels.
- Expand electricity generation and transmission capacity and also increase access to electricity.
- Address barriers to wider dissemination of renewable energy sources and also to increase their deployment.
- Increase access to affordable energy in rural areas to reduce poverty and promote economic growth.
- Promote efficient use of energy resources and substitution.
- Reduce dependence on woodfuel and ensure sustainable provision of affordable, reliable modern energy services to rural and urban households as a means of reducing poverty and raising standards of living.

4.3 Strategies and National Plans

4.3.1 National Conservation Strategy, 1985

Zambia's firm realization that sustainable development depends on the nurturing of natural resources began with the development of the National Conservation Strategy (NCS). The overall goal of the NCS, Zambia's first policy document on environment, was *“...to satisfy the*

basic needs of all the people of Zambia, both present and future generations, through the wise management of resources” (GRZ, 1985)¹⁸. The main objectives of the NCS were:

- To ensure the sustainable use of Zambia’s renewable natural resources such as forests;
- To maintain Zambia’s biological diversity, and
- To maintain essential ecological processes and life support systems in Zambia.

Some of the sustainable actions suggested by NCS for the wise management of natural resources, included:

- a) Forestry – watershed management and sustainable yield control;
- b) Industry – energy management and pollution control;
- c) Towns – economic land use, designing buildings for economical use of energy and materials, and
- d) Power – substituting fossil fuels, which pollute and demand foreign exchange, with renewable forms such as hydro-electric power and solar energy.

In addition to the proposed sustainable actions, the NCS recommended the development of the national legislation and institutional framework on natural resources and environment management in Zambia.

4.3.2 National Solid Waste Management Strategy for Zambia, 2004

Developed in 2004, the National Solid Waste Management Strategy (NSWMS) for Zambia is aimed at contributing to improving the quality of the Zambian environment through the development and implementation of an efficient and sustainable waste management system (ECZ, 2004)¹⁹. The principle driving the strategy is waste minimization/ reduction, re-use and recycling, pre-treatment/treatment and disposal.

According to the ECZ (2004), an efficient and sustainable waste management system in Zambia will be achieved through:

- 1) Minimizing waste generation;
- 2) Maximizing the collection efficiency of the waste;
- 3) Reducing the volume of waste requiring disposal and maximizing the economic value of the waste, and
- 4) Developing and adopting environmentally sound treatment and disposal methods/ practices.

Additional principles recognised by ECZ (2004) to be fundamental in the implementation of the strategy are presented in Box 2, thus:

Box 2: Principles fundamental in the implementation of the National Solid Waste Management Strategy for Zambia, 2004

Polluter Pays Principle

This principle entails that costs of preventing, abating pollution i.e. potential polluter acts to prevent pollution, and pays for remedying the eliminating and/or compensating for damage to the environment must be borne by the party responsible.

Integrated Lifecycle Principle

The substances and products should be designed and managed in such a way that environmental impacts are minimized during generation, use, recovery and disposal.

Source Reduction Principle

This implies any practice that reduces the amount or toxicity of waste materials generated. The focus is on how to generate less waste rather than what to do with waste. Source reduction practices may include the following:

- Reduce material use in product manufacture
- Increase production efficiency resulting in less production waste
- Decrease toxicity
- Material reuse or more efficient consumer use of materials (e.g. reusable shopping bags)

This may be achieved by using appropriate plant and process designs.

Precautionary Principle

This implies that where there is uncertainty over the consequences of an activity or project, no action should be taken. A risk assessment exercise is undertaken before proceeding with a project that is likely to have negative impacts.

Principle of Cooperation

This principle emphasizes that co-operation among all social groups is vital to solving environmental problems.

4.3.3 Fifth National Development Plan, 2006

The Fifth National Development Plan (FNDP) 2006 - 2010 is aimed at coordinating and inter-linking sectoral strategic plans. The FNDP is based on the theme “broad based wealth and job creation through citizenry participation and technological advancement” with a strategic focus on “economic infrastructure and human resources development” (MoFNP, 2006)²⁰.

In line with the Vision 2030, the main goal of the plan is to accelerate pro-poor growth, or to ensure that the growth process rapidly reduces poverty than what was achieved during the Poverty Reduction Strategy Paper (PRSP) period. To realise this goal, the main growth objective in this plan is therefore twofold (MoFNP, 2006):

- a) Increase the overall growth rate to an annual average of at least 7 per cent, and
- b) Ensure that growth is broad based and rapid in the sectors where the poor are mostly engaged.

The plan focuses on agricultural development as the engine of income expansion in the economy. Among other economic sectors that complement this focus are infrastructure, tourism, manufacturing, mining and energy.

Despite being flawed with coordination problems, implementation of FNDP was completed as per schedule and the economic development agenda will now be advanced through the implementation of the Sixth National Development Plan (SNDP). The SNDP was launched on Friday, February 4th, 2011.

4.3.4 Sixth National Development Plan, 2011

The Sixth National Development Plan (SNDP) 2011–2015, the successor to the Fifth National Development Plan (FNDP), is aimed at actualising the aspirations of the Vision 2030 of becoming “a prosperous middle-income nation by 2030” and it is meant to build-on the gains of the FNDP in the process of attaining the Vision 2030 (MoFNP, 2011)²¹.

SNDP has been developed around the theme “*sustained economic growth and poverty reduction*”. The objectives of SNDP are to accelerate: infrastructure development; economic growth and diversification; rural investment and poverty reduction and enhance human development (MoFNP, 2011).

The Plan focuses on policies, strategies and programmes that will contribute significantly to addressing the challenges of realising broad based pro-poor growth, employment creation and human development. Thus, SNDP contains only sector programmes that have been identified as critical to achieving broad based pro-poor growth, employment creation and human development. These priority areas include: 1) Economic and Social Developments; 2) Infrastructure; Human Development; Growth sectors; 3) Support sectors; 4) Regional Development and Monitoring and Evaluation Institutional Arrangement while at the same time mainstreaming Governance, Human Immune-Deficiency Virus and Acquired Immune-Deficiency Syndrome, Gender, Disability, Nutrition, Environment and Disaster Risk Management issues.

SNDP has identified five (5) sectors, namely: agriculture (livestock and fisheries); mining; tourism including arts and culture; manufacturing, and commerce and trade to be the primary engine to drive the socio-economic development and growth over the next five years. Other development sectors of focus in SNDP, include:

- Transport;
- Energy;
- Housing;
- Health;
- Education and Skills Development;
- Water and Sanitation;
- Child, Youth and Sports Development;
- Science, Technology and Innovation;
- Information and Communications Technology;
- Natural Resources;
- Local Government and Decentralisation, and
- Social Protection.

4.3.5 Environment and Natural Resources Management and Mainstreaming Programme, 2008-2012

The Environment and Natural Resources Management and Mainstreaming Programme (ENRMMP) is an initiative of the Government of the Republic of Zambia (GRZ) that aims to bring improved coordination and implementation capacity to the Environment and Natural Resources (ENR) management sector (MTENR, 2008)²². The programme is based on principles, priorities and objectives of the FNDP with a view of the programme becoming the medium for all Cooperating Partner's (CP) intervention in the Tourism, Environment and Natural Resources sector.

The development objective of the programme is to support the FNDP environment and natural resources sector objective: *"To contribute to reversing environmental damage, the maintenance of essential environmental and biological processes, and to achieving sustainability in natural resource utilization for the benefit of the people"*. Specifically the programme will:

- Support MTENR in providing tools (policy and legislative frameworks, information and databases) to be used by other government agencies to mainstream environmental and natural resources management into their development activities, and
- Supporting implementation of national development priority interventions that contribute to reversing environmental damage or natural resource protection or enhancement.

The programme is developed around two components, namely a capacity development component and an environmental fund component. The capacity development component will endeavour to strengthen and further integrate management and decision-making systems in the ENR sector that will build more responsive, prioritised, effective and efficient investments in environmental and natural resources activities. The environmental fund component, on the other hand, will support projects and programmes that will contribute to improving, protecting or sustainably utilising the environment through investments that contribute to the livelihood of poor people.

4.4 Institutional Arrangement for Environmental Management in Zambia

Although Zambia has had a long history of environmental management and natural resource conservation, its laws relating to the Environment and Natural Resources (ENR) management sector are spread over more than 20 international treaties and over 30 Acts of Parliament and responsibility dispersed amongst at least ten line ministries. This poses a great challenge to government when it comes to implementation and enforcement, but it is the mandate of MTENR to formulate a cross-cutting Environment Policy (MTENR, 2008). As a result, the country has, to date, established a robust institutional arrangement backed by a dynamic regulatory framework that ensures that environmental concerns are integrated into economic development, as a matter of priority.

The lead institution responsible for the development of environmental policy and legislation in Zambia is the Ministry of Tourism, Environment and Natural Resources (MTENR). Complementing ministries responsible for policy development and planning on specific sectors of the environment include the following ministries:

- Ministry of Agriculture and Co-operatives (MACO);
- Ministry of Livestock and Fisheries (MoLF);
- Ministry of Energy and Water Development (MEWD);
- Ministry of Communication and Transport (MCT);
- Ministry of Local Government and Housing (MLGH);
- Ministry of Commerce, Trade and Industry (MCTI), and
- Ministry of Mines and Minerals Development.

The ECZ is Zambia's environmental agency. It is the principal enforcement agency of the country's environmental legislations, the EPPCA, and is therefore primarily responsible for environmental protection, pollution control and natural resource management. The ECZ also coordinates all issues pertaining to natural resources and environmental management. However, there are other government institutions and agencies responsible for enforcement of the other aspects of the environment. These include the Forestry Department (FD); the National Water and Sanitation Council (NWASCO); Mines Safety Department (MSD); Department of Tourism Development (DTD); Department of Environment and Natural Resources Management (DENRM); Department of Maritime and Inlands Waterways; Department of Water Affairs (DWA); Zambia Wildlife Authority (ZAWA), and the Local Authorities (LA).

Other institutions include:

- Energy Regulations Board (ERB);
- Rural Electrification Authority (REA);
- Zambia Bureau of Standards (ZABS);
- National Institute for Scientific and Industrial Research (NISIR), and
- National Science and Technology Council (NCTS).

It is also the role of the ECZ to coordinate institutions on key environmental matters to ensure sustainable development.

5.0 SUSTAINABLE DEVELOPMENT PRIORITIES

The current strategic direction in the environmental sector focuses more towards management as opposed to control. This is evidenced by the amendment of the EPPC Act. The EPPC Act has been repealed and the Environmental Management Bill of 2010, once assented to by the President of the Republic of Zambia, will be the new environmental legislation for Zambia.

The Environmental Management Bill, 2010 provides for the continuation of the ECZ but renaming it to the Zambia Environmental Management Agency. The Bill further seeks to deal with emerging issues, among others (GRZ, 2010)²³:

- Provide for integrated environmental management and the protection and conservation of the environment and the sustainable management and use of natural resources.
- Provide for the preparation of the State of the Environment Report, environmental management strategies and other plans for environmental management and sustainable development.
- Provide for the conduct of the strategic environmental assessment of the proposed legislations, policies, plans and programmes likely to have an impact on environmental management.
- Establish the Environmental Fund.
- Facilitate the implementation of international environmental agreements to which Zambia is a party.

The Bill further provides for the rights to clean, safe and health environment for every person living in Zambia; conservation of biological diversity; promotion of cleaner production and sustainable consumption of goods and services. The Environmental Management Bill mandates the Agency, in collaboration with appropriate authority and conservancy authorities, to promote cleaner production technologies and techniques and foster sustainable consumptions of goods and services.

It is, therefore, obvious from the review of the various policy strategies that there are a number of proposals and/ or activities related to SCP that can be used as entry points for the integration of SCP in Zambian development agenda. The availability of knowledge and institutions mandated to carry out such activities and the coordination that exists amongst institutions can be the required catalyst to promote SCP programme in Zambia.

This section discusses Zambia's development priorities with linkages to sustainable consumption and production. The summary information presented in table 3 is synthesised from the policies, strategies and plans presented under section 4 above (cf. section 4).

Therefore table 3 only highlights the overall goals of the policies, strategies and national plans and the proposed key outputs. The detailed synthesis of these policies, strategies and national plans with regards to their linkages to SCP is presented under annex 1.

Table 3: Summary of policies, strategies and national plans

Policies, strategies and national plans	Overall goal	Areas of intervention	Key output
Vision 2030	A Prosperous Middle Income Nation by 2030	Macro and micro economy policy levels	Attain annual average real GDP growth of at least 10 per cent through-out the period of implementation.
Fifth National Development Plan (FNDP), 2006 - 2010	Broad based wealth and job creation through citizenry participation and technological advancement	Agricultural development, complemented by: <ul style="list-style-type: none"> • Infrastructure • Tourism • Manufacturing • Mining • Energy 	Reduction of poverty and improvement of health, wealth and wellbeing of citizens through well-coordinated and interlinked sectoral strategic plans.
Sixth National Development Plan (SNDP), 2011 - 2015	Sustained economic growth and poverty reduction	<ul style="list-style-type: none"> • Infrastructure development • Economic growth and diversification • Rural investment and poverty reduction • Enhance human development 	Improve high poverty levels in rural areas and promote rural development through stimulating agriculture productivity and promotion of agro-businesses, improving the provision of water and sanitation, health, education and skills development.
Environment and Natural Resources Management and Mainstreaming Programme	Development of the national capacity to integrate ENR into development activities and to identify, plan, finance and implement ENR improvement	<ul style="list-style-type: none"> • Capacity development, and • Establishment of an Environmental Fund 	Development of legislative tools, information and guidance and general improvement in the livelihood and poverty levels of the citizens through the protection and sustainably utilization of environment
National Conservation Strategy	Satisfy the basic need of all the people of Zambia, both present and future generations, through the wise management of resources	Energy, water and agriculture	Promotion of the use of renewable energy resources and sustainable water use strategies
National Solid Waste Management Strategy for Zambia	Improve environmental quality through the development and implementation of an efficient and sustainable waste management system	Solid waste	Promotion of sustainable solid waste management through source reduction, re-use, pretreatment and recycling and disposal
National Policy on Environment	Supports the Government's development priority to eradicate poverty and improve the quality of life of the people of Zambia	Environmental planning	Ensures the integration of environmental planning into economic and social development planning

Table 3: Summary of policies, strategies and national plans (Cont'd)

Policy, strategy and national plan	Overall goal	Areas of intervention	Key output
National Agriculture Policy	Promote development of an efficient, competitive and sustainable agricultural sector that assures food security and increased income	<ul style="list-style-type: none"> • Sustainable and environmentally sound agricultural practices • Biological diversity, conservation of aquatic ecological system and sustainable utilization of natural resources 	Promotion of sustainable agricultural practices through efficient use of resources so as to promote competitive agricultural sector and ensure food security
Water Policy	Optimally harness water resources for the efficient and sustainable utilization of natural resource to enhance economic productivity and reduce poverty	Water resources planning and development and supply	Adequate provision of water for sustained economic development
National Energy Policy	To provide well developed, managed, reliable and sustainable energy services for the improvement of the quality of life of all Zambians	Biomass, renewable energy, hydroelectricity and energy management	Ensure access to energy by general public as well as industry at the same time ensuring the conservation of energy and making the energy available for all economic development

5.1 SCP Programmes and Activities Implemented in Zambia

SCP activities and programmes implemented in Zambia, both completed and on-going, are discussed. Notable programmes and activities include training industry in Cleaner Production (CP) methodology, managing the demand side of electricity use, promotion of renewable energy sources and energy efficient stoves, rural electrification, sustainable agriculture and water supply and sanitation. The summary of some of these programmes and activities is given Table 4.

5.1.1 Training industry in Cleaner Production methodology

Since 1998, Zambia has implemented cleaner production training programme under the Norwegian Agency for Development (NORAD) supported Industrial Pollution Prevention Programme (IPPP). The Cleaner Production (CP) programs have achieved remarkable economic savings along with environmental and health impact improvements. In all Seven (7) CP trainings involving a total of 71 Zambian companies were conducted. The implementation of the CP programme in the participating industries resulted in the overall savings of 32 million US Dollars (US\$32,000,000). The pay-back period for the investment was reportedly to average four (4) months.

Table 4: Results from CP Programmes in Zambia

Program	Companies	ECZ staff	Participants	Reported Savings USD
CP1/1998	8	3	29	4, 274,447
CP2/1999	16	4	30	23,449,172
CP3/2000	11	3	24	694,388
CP4/2001	9	2	21	588,033
CP5/2002	8	2	23	2,010,857
CP6/2004*	5	2	15	48,784
CP7/2004*	14	5	29	1,169,238
Total	71	21	171	32,234,919

*Small and medium size enterprises

5.1.2 Demand side management of energy

The government through the Energy Regulation Board (ERB) in conjunction with Zesco Limited, the electricity utility company, has embarked on managing the demand side of electricity use. Some of the activities undertaken include the following:

- Continuous sensitizing the public on the use of energy saving bulbs over incandescent lamps in households and street lighting. This is undertaken through the use of brochures, print and electronic media and conducting energy conservation weeks, promotion of energy conservation clubs in institutions of learning; sponsoring quizzes in institutions of learning;
- Partnering with shops that sell energy saving lamps for mass rollout of energy savers. This activity is implemented under Zesco Limited short-to-medium term intervention to mitigate the effects of load shedding;
- Suspension of duty and value added tax on energy saving lamps, energy efficient appliances and generation sets by the government;
- Promotion of low cost sources such as solar energy;
- Undertaking pre-paid metering at consumption points;
- Continuous installation of electricity meters at household, industrial and commercial levels and reducing the backlog of unmetered customers, and
- Introduction of various incentives like the voluntary Time of Use (ToU) tariff for Maximum Demand (MD) customers such as farmers and manufacturers where they enjoy 25 per cent and 50 per cent discounts on capacity and energy charges respectively for consumption between 22:00hrs and 06:00hrs.

5.1.3 Renewable energy sources

Renewable energy sources like solar energy and hydro are increasingly being used but still remain insignificant in terms of contribution to the total national energy supply. These sources have great potential for electricity production and use in many sectors. Despite this high potential, in relative terms, the downside to the promotion of Renewable Energy

Technologies (RET) and small-scale energy systems is the high investment capital costs. This undoubtedly needs guarantees of long-term stable income streams to ensure financial viability.

5.1.4 Promotion of efficient cook-stoves

The conventional stove used in majority of households in Zambia to cook and heat homes is a metal cook stove (blazier). This uses charcoal and/ or firewood. As access to firewood and charcoal for fuel becomes more difficult, demand for cook stoves that burn the fuel more efficiently grows. In an effort to dramatically reduce fuel consumption and exposure to harmful smoke, efficient cook-stoves have been designed and marketed in Zambia. Efforts are also underway to turn the reductions in emissions achieved by clean cook stoves into revenues from carbon credits.

5.1.5 Rural electrification

The government through the Rural Electrification Authority (REA) is working to improve access to electricity in rural areas by supporting rural electrification projects which includes grid extensions, installation of solar photovoltaic systems and construction of mini-hydro power stations. The focus of the rural electrification programme is anchored around the use of renewable energy sources.

5.1.6 The Bio-fuels industry

Following the second national conference on bio-fuels held in 2008, the industry has managed to launch bio-fuels standards and set up a working group to formulate a regulatory framework for the bio-fuels industry. Issues covered under the framework include outlining areas to be regulated and licensed, technical guidelines, and pricing issues.

Amongst the resolutions passed by the conference included the need for the industry to address blending ratios, raising public awareness on bio-fuels and development and completion of the bio-fuel strategy.

5.1.7 Sustainable agriculture

The government in conjunction with the Zambia National Farmers Union (ZNFU) is promoting sustainable farming practices which include the following:

- a) Promoting conservation farming by practicing minimum soil disturbance, crop rotation involving leguminous plants, early land preparation, crop residue retention and tree intercropping. The Conservation Farming Unit of ZNFU is hoping to galvanize conservation farming practices;
- b) Facilitating the development of dams and promoting improved use of water resources through rain water harvesting;
- c) Promoting agro-forestry and the use of green manure. *Faidherbia albida*, commonly known as apple-ring acacia, is the commonly used species for tree intercropping in Zambia;
- d) Assisting smallholder farmers in Zambia access additional revenue through the carbon credit scheme. The scheme is being pioneered by the African Carbon Credit Exchange (ACCE), and

- e) Establishing small-scale irrigation projects for small-scale farmers to reduce diversify crops production. Such projects involve access to locally manufactured rope and treadle pumps.

5.1.8 Urban water supply and sanitation

The provision of water supply and sanitation (WSS) services in Zambia is a mandate of the Local Authorities (LAs) (GRZ, 1991)²⁴. As part of the WSS sector reforms, commercialization of the water supply and sanitation service provision at LAs has been undertaken. The main idea of the commercialization was that the LAs would outsource the management of the WSS services to institutions established on the principle of achieving full cost recovery staffed with professionals ensuring economic viability. Furthermore, it was asserted that external capital for the rehabilitation and extension of the infrastructure was to be attracted by presenting the professional provider as guarantee for sustainability (NWASCO, 2004)²⁵.

The commercialisation process was completed in 2009. A total of 11 Commercial Utilities (CUs) have been formed and these cover all the nine (9) provinces. Each province has one (1) CU except the Copperbelt Province which has three (3) CUs. The regulating authority for the urban water supply and sanitation is the National Water and Sanitation Council (NWASCO).

The WSS sector has been plagued with low investment in infrastructure, low sanitation coverage, inefficiency in operations and prompts payment for services provided by the CUs. However, the commercialization of WSS service provisions have brought about significant improvements in the service provision levels and steady progression towards full cost recovery from user fees and increased service coverage.

The setting up of the Devolution Trust Fund (DTF) has helped the sector in achieving these positive impacts. The DTF provides finances to CUs so as to improve service delivery in low-income areas. These funds cover the costs for water supply services as well as sanitation services.

In addition to the DTF, NWASCO has introduced the Regulation by Incentives (RBI) to stimulate higher performance among the CUs. The RBI works on the premise of rewarding performance. Performance Agreements (PAs) are entered into with CUs. These PAs have elaborated performance indicators, targets to be pursued, the institutional incentives due and how these have to be employed.

Table 5: Identified recently completed and ongoing SCP programmes and activities

Regional priority areas	National/sectoral/city priorities	Programmes/projects	Specific actions/activities for SCP	Responsible Lead Institution (s)
Water and sanitation	To ensure improved access to water and sustainable development of the water resources.	Commercialization of water supply and sanitation services. There are 11 commercial utilities (CUs) in the country.	<ul style="list-style-type: none"> Put in place water demand management measures - carry out awareness activities among consumers Undertake cost recovery measures since on average CUs bill less than 55% of what they produce Increase service coverage Reduce unaccounted for water Reach as many people as possible with the installation of water kiosks 	<ul style="list-style-type: none"> CUs MLGH NWASCO
		Use of Devolution Trust Fund (DTF) to initiate sanitation pilot projects in low-income areas where the majority of the people.	Roll out the sanitation pilot projects in peri-urban and low cost areas.	<ul style="list-style-type: none"> CUs National Water Supply and Sanitation Council (NWASCO)
		Development of the Decentralized Waste Water Treatment System (DEWATS) comprising Biogas Plant (Sludge settler), Anaerobic Baffle Reactor (ABR) and Planted Gravel Filter (PGF). The DEWATS systems adapt to the local conditions given that conventional treatment facilities may not be suitable for most of the low-income areas.	Rollout the DEWATS to other areas.	<ul style="list-style-type: none"> Water and sanitation Association of Zambia (WASAZA) NWASCO CUs Ministry of Local Government and Housing
		NWASCO has introduced the Regulation by Incentives (RBI) to stimulate higher performance among the CUs.	Up-scaling the programme to include other CUs in order to introduce self monitoring and enhance performance.	<ul style="list-style-type: none"> NWASCO CUs

Table 5: Identified recently completed and on-going SCP programmes and activities (Cont'd.)

Regional priority areas	National/sectoral/city priorities	Programmes/projects	Specific actions/activities for SCP	Responsible Lead Institution (s)
Energy	To promote efficient use of energy resources and substitution.	<ul style="list-style-type: none"> The Government through ERB in conjunction with Zesco, has embarked on managing the demand side of electricity use Rural electrification Promotion of renewable energy technologies Promotion of efficient cook stoves 	Demand side management of energy use <ul style="list-style-type: none"> Carry out a survey on current practices Develop awareness raising programmes and sensitize the public on the efficient use of energy Reorient education curricula to include efficient energy use Promote the use of energy efficient appliances Promote efficient use of resources by maximising reliance on renewable sources Promote the establishment of energy conservation clubs Collaborate with government to introduce incentives aimed at promoting the use energy efficient equipment 	<ul style="list-style-type: none"> Zesco ERB
Urban development	To ensure that national, provincial and district development plans integrate environmental concerns, in order to improve environmental management and ensure sensitivity to local concerns and needs.	A Strategic Approach towards International Chemicals Management (SAICM) has been developed. This approach provides a framework to achieve a stakeholder support effort to reducing dangers arising from chemicals and waste.	<ul style="list-style-type: none"> Undertake a survey to establish current waste management practices in project areas Increase awareness levels on sound waste management practices 	<ul style="list-style-type: none"> Local authorities ECZ
	To increase public and political awareness and understanding of the need for environmental protection, sustainable natural resource utilisation, conservation and management as essential partners in development.	ECZ has been training industry in CP by promoting the sound application of waste management practices.	Establishment of a Cleaner Production Centre to conduct training on Resource Efficiency.	<ul style="list-style-type: none"> ECZ Industry

Table 5: Identified recently completed and on-going SCP programmes and activities (Cont'd.)

Regional priority areas	National/sectoral/city priorities	Programmes/projects	Specific actions/activities for SCP	Responsible Lead Institution (s)
Urban development	To create a legal framework for the implementation of the National Policy on Environment and sustainable environmental management.	Zambian Standard on Plastic carrier bags and Flat bags in place while Extended Producer Responsibility regulations have been drafted.	Enforcement of the standard and operationalisation of the EPR regulations.	<ul style="list-style-type: none"> • MTENR • ECZ
Industrial development	<ul style="list-style-type: none"> • To ensure that the existing agricultural resource base is maintained and improved upon • To promote the development of sustainable industrial and commercial processes having full regard for environmental integrity 	<ul style="list-style-type: none"> • The Conservation Farming Unit of ZNFU is persuading farmers to adopt conservation farming practices • Facilitating the development of dams • Promoting agro-forestry and the use of green manure • The ACCE is working with Zambian and international partners to help smallholder farmers, adopt conservation farming practices, and in doing so to enable them to qualify for additional revenues from the sale of carbon credits • Establishing small-scale irrigation projects for small-scale farmers to reduce dependence on rain-fed crops. 	<ul style="list-style-type: none"> • Develop policy and management activities that to promote sustainable agriculture • Promote organic manuring and composting • Promote water harvesting • Facilitate rehabilitation of dams and weirs • Promote efficient use of resources by maximising reliance on natural, renewable and on-farm inputs • Restructure commodity and price support programs to allow farmers to realize the full benefits of the productivity gains made possible through alternative practices • Develop strategies that influence consumer choices • Promote the use of agro-forestry to minimize the impacts of salinity and high water tables • Educate community facilitators, land use planners and decision-makers about sustainable agriculture • Assess and identify best practices for energy efficiency and renewable energy technologies in agriculture 	<ul style="list-style-type: none"> • MCTI • ECZ

6.0 PILOT ACTIVITIES FOR THE PROMOTION OF SCP

In order to accelerate the promotion of SCP in Zambia, SCP activities to be implemented on a pilot basis have been identified. The criteria adopted by the TWG to select these pilot activities, include the following:

- a) Relevance of the pilot activities to national goals as indicated in the Vision 2030 and FNDP;
- b) Areas that could result in effective demonstration of the benefit of integrating SCP in the development process and provide multiplier effects;
- c) Relevance of the identified activities to the four thematic areas of the African 10-YFP on SCP, and
 - ☞ Provision of affordable and sustainable energy for productive use.
 - ☞ Water provision and efficient utilization.
 - ☞ Urban development and sanitation.
 - ☞ Improvement of the competitiveness of African Industries in the global market.
- d) Availability of existing institutional structures and processes to facilitate smooth implementation of the selected pilot activities.

The selected activities to be piloted are:

Thematic area I	Energy
Pilot Activity	Demand side management of energy use
Thematic area II	Water and Sanitation
Pilot activity	Demand side management of water use
Thematic area III	Urban Development
Pilot Activity	Integrated waste management
Thematic area IV	Industrial Development
Pilot Activity 1	Establishment of a national Cleaner Production Centre
Pilot Activity 2	Sustainable agriculture
Cross cutting area	
Pilot Activity	Education for sustainable lifestyles

Table 6 provides a profile for the proposed pilot activities for the promotion of sustainable consumption and production in Zambia. It defines the objective of the activity to be undertaken, specific activities, results/outcomes and targeted groups/sectors.

The summary description of the pilot projects are given in the Appendix 2.

Table 6: Pilot activities

Pilot activity	Objectives	Specific activities	Results/ Outcomes	Target groups/ Sectors
Establishment of a national Cleaner Production Centre	To establish an independent Cleaner Production Centre (CPC) in Zambia to support Zambian companies in their effort to improve environmental performance and increase the profits of their companies	<ul style="list-style-type: none"> • Establish the CP institution • Develop a strategic plan for the CP institution • Operationalise the strategic plan for the CP institution • Develop and implement the marketing and business strategy • Develop and implement management and financial systems • Develop and implement CP training programmes 	<ul style="list-style-type: none"> • Fully operational CPC • Improved resource efficiency in Zambian industry • Improved competitive advantage 	<ul style="list-style-type: none"> • ZAM • Manufacturing sector • ZACCI • ECZ • MCTI • CP experts • ZABS
Demand side management of water use	To promote the sustainable management of the demand side water-use with a view to facilitate the provision of water of adequate quantities and good quality for use by the general community	<ul style="list-style-type: none"> • Develop awareness raising materials on efficient water use • Carry out an awareness raising campaign to educate the public on efficient water use • Promote water recycling, re-use and rainwater harvesting at household and institutional levels • Implement water metering at consumption points • Implement regular repairs of leakages on pipe networks 	<ul style="list-style-type: none"> • Increased awareness on efficient water use • Improved quantity and quality of available water • Reduced unaccounted for water 	<ul style="list-style-type: none"> • CUs • MoE • Schools • The general public
Demand side management of energy use	To promote demand side management measures of energy use	<ul style="list-style-type: none"> • Develop awareness raising materials on efficient use of energy • Undertake awareness raising programmes to sensitize the public on the efficient use of energy • Reorient education curricula to include efficient energy use • Promote the use of energy efficient appliances and reliance on renewable sources • Promote the establishment of energy conservation clubs • Collaborate with government to introduce incentives aimed at promoting the use energy efficient equipment • Undertake pre-paid metering at consumption points 	<ul style="list-style-type: none"> • Educational programmes on efficient use of energy • Incentives by the government to accelerate use of energy efficient appliances • Increase in the use of energy efficient appliances • Energy conservation clubs established in schools 	<ul style="list-style-type: none"> • MoE – CDC • MEWD – Energy Department • MCTI • Commercial and trading sector • Schools • Zesco Limited • The general public

Table 6: Pilot activities (Cont'd.)

Pilot activity	Objectives	Specific activities	Results/ Outcomes	Target groups/ Sectors
<p>Sustainable agriculture</p>	<p>To promote sustainable agriculture and improved crop yield while ensuring that environmental, economic profitability, social and economic concerns are integrated in agriculture</p>	<ul style="list-style-type: none"> • Streamline developed policies and strategies to promote sustainable agriculture • Promote the use of organic manure and composite manure • Promote water harvesting • Promote small scale irrigation for improved food security by facilitating the rehabilitation of dams and weirs • Promote use of renewable resources and on-farm inputs • Advocate for the restructure of commodity and price to allow farmers to realize the full benefits of the productivity gains made possible through alternative practices • Develop complementing strategies that influence consumer choices so that environmental quality, resource use and social equity issues are also considered in shopping decisions. • Promote agro-forestry • Promote the improvement of land and natural resources management through community education and outreach in land use planning and management on sustainable agriculture • Promote best practices on energy efficiency and renewable energy technologies in agriculture 	<ul style="list-style-type: none"> • Improved food security and contribute to economic growth • Contribute to poverty reduction • Improved land and natural resources conservation upon which agriculture is based • Promote efficient use of resources • Improved management of the land 	<ul style="list-style-type: none"> • ZNFU • MACO • Farmers • Agricultural extension officers • Energy utility company • Suppliers of renewable energy technologies

Table 6: Pilot activities (Cont'd.)

Pilot activity	Objectives	Specific activities	Results/ Outcomes	Target groups/ Sectors
Integrated waste management	Improve the management of solid waste by promoting interventions aimed at reducing the amount of waste dumped at disposal sites	<ul style="list-style-type: none"> • Develop guidelines for waste recovering, reuse and recycling • Promoting training of industry in CP methodologies to improve waste management practices • Promote mechanisms encouraging waste separation at sources • Encouraging community participation in waste management establishment of community based enterprises to assist with primary collection of waste • Initiate awareness raising campaigns to promote positive consumer behaviour and sound waste management practices • Dialogue with the government on the introduction of incentives to promote recycling in the country • Operationalise the extended producer responsibility regulations and the Zambian Standard on Plastic • Introduce carrier bags (and plastics) with capability of being recovered and recycled 	<ul style="list-style-type: none"> • Integrated waste management system put in place for the pilot project • Reduced amount of waste available for disposal • Improved consumer behaviour resulting in reduced waste 	<ul style="list-style-type: none"> • ECZ • MCTI • Manufacturing sector • Commercial and trading sector • Private sector – SWM businesses • ZABS • Communities • Local authorities
Education for sustainable lifestyles	To address the sustainability challenge through education that stimulates behavioural changes	<ul style="list-style-type: none"> • Develop education and awareness materials to use by change agents • Develop tools for communication • Engage youths and tutor them on issues covering sustainable consumption and production • Raise awareness on conservation of energy and water, reuse and recycling options, leisure activities, eating and drinking healthily to promote positive change • Reorient existing education to address sustainable development • Involve the youth and tap into the energy, motivation and creativity • Use role models (actors, models, sport champions) to stimulate change 	<ul style="list-style-type: none"> • Environmental quality, resource use and social equity issues influencing consumer choices • Education reoriented to address sustainability • Attitude and behaviour changes that contribute to sustainable consumption 	<ul style="list-style-type: none"> • General public • The youth • MoE - CDC • Schools • Training and research institutions

7.0 IMPLEMENTATION AND MONITORING

The implementation of the proposed pilot activities will require consultations with the identified implementing institutions. This consultation will lead into the development of the implementation (work) plan and strategy. Furthermore, sources of finances (funding) to support the implementation of the proposed pilot activities will be identified. This is despite the fact that, in principle, the funding to finance the implementation of the pilot SCP activities will, in as much as possible, be sourced from the mainstream budget of the respective implementing institutions. Thus, the proposed SCP pilot activities will be streamlined within the main work plans and budgets of the identified implementing institutions.

Table 7 highlights the implementation mechanism for each activity. The table gives the implementing institutions, the verifiable indicators to facilitate the monitoring process and possible sources of funds. The verifiable indicators given are measurable and as such will provide performance achievements.

Table 7: Implementation and monitoring mechanisms for the Pilot SCP activities in Zambia

Pilot activity	Implementing institutions	Verifiable indicators	Possible sources of funding
Establishment of a national Cleaner Production Centre	ECZ, ZACCI, ZAM, MCTI, ZABS	<ul style="list-style-type: none"> Fully operational CPC centre Number of training programmes held per year Number of industries certified Successful CP programmes implemented by the participating industries Total amount of money saved per year by participating industries 	<ul style="list-style-type: none"> National budget Bilateral/ Development Agencies Multilateral/ International Institutions
Demand side management of water use	NWASCO, CUs	<ul style="list-style-type: none"> Percent of unaccounted for water reduced by at least 10% in the first year Metering of consumption increased by at least 20% in the first year Water network coverage increased by at least 15% in the first year Average time of water rationing reduced to 7 hours per day in the first year Use of little-fits (water saving devices) at consumption points increased by at least 10% in the first year 	<ul style="list-style-type: none"> National budget Bilateral/ Development Agencies DTF Small grant projects
Demand side management of energy use	Zesco Limited, ECZ, ZACCI, ZAM and MCTI	<ul style="list-style-type: none"> Educational programmes on efficient use of energy developed and implemented in 15 schools and televised over 13 weeks period on national television in the first year Number of incentives introduced by the government to promote use of energy efficient appliances The use of energy efficient appliances increases by 10% in the first year Quantity of energy (KWh) saved and is available for other uses At least 15 energy conservation clubs established in schools and are functional in the first year 	<ul style="list-style-type: none"> National budget Bilateral/ Development Agencies Multilateral/ International institutions

Table 7: Implementation and monitoring mechanisms for the pilot SCP activities in Zambia (Cont'd.)

Pilot activity	Implementing institutions	Verifiable indicators	Possible sources of funding
Sustainable agriculture	ZNFU and MACO (Field and extension services, NAIS)	<ul style="list-style-type: none"> • Education programmes on sustainable agriculture developed and implemented by at least 75% of participating farmers by the end of the first year • Number of awareness raising programmes on sustainable agriculture developed and rolled-out through electronic media • Number of commercial farmers employing sustainable farming practices increases by 20% in the first year • Number of small to medium scale farmers employing sustainable farming practices increases by 30% in the first year • Amount of land under sustainable farming practices increases by a 30% in the first year • Number of small scale farmers growing crops throughout the year increases by at least 10% in the first year • Market share of crops grown from organic manure increases by at least 5% in the first year 	<ul style="list-style-type: none"> • National budget • Bilateral/ Development Agencies • Multilateral/ International Institutions • Small grants projects
Integrated waste management	ECZ, LAs	<ul style="list-style-type: none"> • Reduction, reuse and recycle guidelines developed and implemented by LAs by the first quarter of the first year; • Overall quantity (tones) of waste disposed at disposal sites reduces steadily in each quarter in the first year; • Overall quantity of waste recovered increases progressively in each quarter in the first year; • Extended producer responsibility regulations operationalized by the first half of the first year; • Number of companies trained in CP methodologies increases by 10% in each quarter in the first year; • At least 5% savings by each industry by the end of the first year after implementing CP mechanisms; • Incentives promote waste reduction, reusing and recycling introduced by the government in the first half of the first year; • Number of companies involved in waste recycling activities increases by at least 5% by the end of the first year, and • Number of community based enterprises (CBEs) participating in waste reduction and recycling increases by at least 10% by the end of the first year. 	<ul style="list-style-type: none"> • National budgets • Bilateral/ Development Agencies • Multilateral/ International Institutions

Table 7: Implementation and monitoring mechanisms for the pilot SCP activities in Zambia (Cont'd.)

Pilot activity	Implementing institutions	Verifiable indicators	Possible sources of funding
Education for sustainable lifestyles	ECZ, MoE, British Council	<ul style="list-style-type: none"> • At least 10 champions (pupils) trained and mentored by the first-half of the first year • Tools of communication developed by the first quarter of the first year • At least 13 television programmes aired on national television featuring the projects of the 10 champions in the second half of the first year • The environmental science syllabus for basic and secondary school reoriented to include issues on sustainable consumption and production by the end of the first year 	<ul style="list-style-type: none"> • National budget • Bilateral/ Development Agencies

APPENDIX 1: SYNTHESIS OF THE POLICIES, STRATEGIES AND NATIONAL PLANS

Policy, Strategy and National Plan	Objectives	Priority Areas	Key Actions/Activities	Relevance to SCP
Vision 2030	The Zambian people's long term vision is to become "A Prosperous Middle Income Nation by 2030".	Macro-economy	Attaining period annual average real GDP growth of at least 10 per cent through-out the Vision period.	Economic development is in line with the priority actions of the African 10-YFP on SCP. Vision 2030 addresses the economic key challenges that meet human basic needs such as providing adequate water and sanitation as part of the efforts aimed at reducing poverty
	Specific objectives:	Water and sanitation	a) Improve access to appropriate, environmental friendly sanitation by all Zambians; b) Fully integrated and sustainable water resource management; c) Rehabilitation, re-construction of sewage treatment facilities in all major towns and cities; d) Upgrade 80 per cent of unplanned settlements and the residents have access to clean drinking water and sanitation facilities.	
	a) Attain and sustain annual real economic growth rates of between 6 and 10 per cent;			
	b) Attain and maintain a moderate inflation rate of 5 per cent;			
	c) Decelerate the annual population growth rate from its 2005 rate of 2.9 per cent to a rate of less than 1.0 per cent over the next 25 years;	Infrastructure	a) Develop and implement public private-partnerships; b) Promote investment in the creation of subsidiary infrastructure.	
	d) Reduce national poverty head count to less than 20 per cent of the population;	Energy	a) Increase renewable alternative sources of energy; b) Reduce the share of wood fuel to 40 per cent.	
e) Reduce income inequalities measured by a Gini coefficient of less than 40;	Science and technology	a) Acquire and upgrade infrastructure required for training in science and technology and R & D academic institutions; b) Build and sustain human resource capacities and capabilities; c) Promote development of enterprise using outputs from science and technology and R & D activities; d) Strengthen linkages between productive sectors and research institutions in the Economy.		
f) Provide secure access to safe potable water sources and improved sanitation facilities to 100 per cent of the population in both urban and rural areas.				

Policy, Strategy and National Plan	Objectives	Priority Areas	Key Actions/Activities	Relevance to SCP
Fifth National Development Plan 2006 - 2010	To accelerate pro-poor growth, or to ensure that the growth process rapidly reduces poverty than what was achieved during the PRSP/TNDP period.	Macroeconomic policies	<ul style="list-style-type: none"> a) Accelerate pro-poor economic growth; b) Achieve and sustain single digit inflation; c) Achieve financial and exchange rate stability; d) Sustain a viable current account position; a) Reduce the domestic debt to sustainable levels. 	The development of pro-poor economic policies will translate into the improvement of the competitiveness of Zambian industries.
	To reverse environmental damage, maintain essential environmental and biological processes and ensure sustainable use of natural resources for the benefit of the people.	Sustainable environmental management	<ul style="list-style-type: none"> a) Mainstream environmental issues into national development programmes and enforcement of existing policies and laws to protect the environment; b) Institute economic incentives/disincentives which seek to influence the behaviour of producers and consumers by enabling them to choose the most appropriate measures based on own assessed costs and benefits; c) Promote implementation strategies that focus more on establishing an economic environment for promoting environmental protection and less of the government implemented environmental protection initiatives. 	The strategies on reversing environmental threats will improve industry's environmental competitiveness and also accelerate the country's sustainable development initiatives
	To promote a well regulated and profitable irrigation sub-sector that is attractive to both the public and private sectors.	Agriculture – irrigation development and support	<ul style="list-style-type: none"> a) Develop socially desirable and economically viable irrigation schemes; b) Construct communal bulk water supply systems; c) Facilitate irrigation infrastructure development for improved agricultural productivity; d) Establish an irrigation development fund to enable farmers access funds for comprehensive irrigation development that goes beyond provision of irrigation equipment; Promote sustainable utilization of wetlands and dambos. 	

Policy, Strategy and National Plan	Objectives	Priority Areas	Key Actions/Activities	Relevance to SCP
Fifth National Development Plan, 2006 - 2010	To ensure safety and environmentally friendly meteorology and information and communication technology system through education, engineering and enforcement.	Meteorological information and services development	a) Improve the reporting and analysis of data in the sector; b) Develop databases and Geographical Information Systems (GIS) to support land, water resource management and environmental monitoring.	The development of pro-poor economic policies will translate into the improvement of the competitiveness of Zambian industries. The strategies on reversing environmental threats will improve industry's environmental competitiveness and also accelerate the country's sustainable development initiatives
	To develop and implement an appropriate policy framework in order to facilitate effective private sector participation in the construction and maintenance of public infrastructure.	Infrastructure - development and implementation of Public Private Partnership Policy	a) Develop and implement mechanisms for development and review of policies and legislation; b) Develop and implement mechanisms for monitoring the implementation of Public Private Partnerships (PPPs); c) Develop and implement private sector financing under build operate and transfer (BOT).	
	To manage and conserve indigenous forests in a sustainable way.	Natural Resources - sustainable indigenous forest resource management	a) Integrate forestry into relevant cross-sectoral development activities; b) Implement sustainable forest management and conservation; c) Strengthen forest resource protection and monitoring.	
	To promote investment in the tourism sector.	Tourism - tourism investment and enterprise promotion	a) Facilitate new investment opportunities in tourism through mobilization and provision of financial resources, focusing on Small and Medium sized Enterprises (SMEs) in tourism; b) Ensure promotion of indigenous and local entrepreneurs' participation in the tourism industry; c) Promote and monitor eco-tourism.	
	To develop rural based industrial enterprises.	Manufacturing – rural industrialization	Develop appropriate infrastructure in rural areas so as to support small-scale manufacturing, targeting the processing of rural-based primary products, focusing on: a) Developing a rural industrialization policy; b) Exploring market opportunities for rural manufactured goods;	

Policy, Strategy and National Plan	Objectives	Priority Areas	Key Actions/Activities	Relevance to SCP
Fifth National Development Plan, 2006 - 2010	To develop rural based industrial enterprises.	Manufacturing – rural industrialization	<ul style="list-style-type: none"> c) Developing new forms of small and medium financial services; d) Promoting the use of alternative and renewable sources of energy, such as solar power; e) Encouraging on-site agro-processing in new agricultural farm blocks. 	<p>The development of pro-poor economic policies will translate into the improvement of the competitiveness of the Zambian industries.</p> <p>The strategies on reversing environmental threats will improve industry's environmental competitiveness and also accelerate the country's sustainable development initiatives</p>
	To increase electrification levels in order to increase access for social economic development in rural communities.	Rural electrification	<ul style="list-style-type: none"> a) Develop and implement the Rural Electrification Master Plan; b) Develop micro/pico hydro power schemes in order to increase access to electricity services in rural areas; c) Mobilise financial resources to promote rural electrification. 	
	To facilitate the development of bio-fuel industry.	Bio-fuel development	<ul style="list-style-type: none"> a) Develop a strategy for promoting the utilization of bio-fuel; b) Develop a bio-fuel development implementation. Strategy. 	
	To promote energy efficiency and conservation.	Energy efficiency and conservation	Develop and implement programmes that promote increased energy conservation and management practices in households and the industrial sector.	
	To provide and disseminate up-to-date information on renewable and alternative energy resources for effective planning and awareness, development, management and utilization.	Renewable and alternative energy development and promotion	<ul style="list-style-type: none"> a) Undertake a comprehensive assessment of renewable energy potential in selected parts of the country in order to develop a resource map and bankable project proposals; b) Conduct awareness campaigns. 	

Policy, Strategy and National Plan	Objectives	Priority Areas	Key Actions/Activities	Relevance to SCP
Sixth National Development Plan, 2011 - 2015	To improve the nutritional status of the Zambian population through the provision of quality nutrition services and increased availability, access and utilization of quality and safe foods	Nutrition	<ul style="list-style-type: none"> a) Amend the National Food and Nutrition Commission Act of 1967; b) Expand proven high impact and cost effective food and nutrition interventions focusing on under-served areas and vulnerable population groups; c) Advocate for the promotion of nutritious diet through crop diversification, adequate food processing, storage and utilization; d) Ensure adequate quality and safety of local and imported food and food products; e) Enhance effective utilization of food by advocating for control, prevention and treatment of diseases having an impact on nutrition and specifically community-based interventions, and f) Support expansion of the school feeding programme and other school nutrition services. 	Impacts on sustainable agriculture and ensuring food security
	To strengthen policy and legal framework for effective environmental management	Environment	<ul style="list-style-type: none"> a) Harmonize sector policies and legislation to ensure adequate coverage of environmental and natural resources concerns in selected sectors (Agriculture, Health, Education, Energy, Water, Land, Infrastructure, Mining, Local government and MoFNP) b) Review existing policy and legal framework for environmental management; c) Strengthen enforcement of environmental regulations; d) Domesticating Multilateral Environmental Agreements; e) Develop long-term environment and climate change; mainstreaming and response strategies respectively for implementation at national, sector and sub-national levels and legal framework, and f) Strengthen institutional capacity at national, provincial, district and community levels to effectively implement the policy. 	Streamline environmental management and sustainability in other sectors of socio-economic development agenda of the nation

Policy, Strategy and National Plan	Objectives	Priority Areas	Key Actions/Activities	Relevance to SCP
Sixth National Development Plan, 2011 - 2015	To strengthen environmental protection and management	Environment	<ul style="list-style-type: none"> a) Improve data and information management systems and equipment and human capacity for environmental accounting and pollution mitigation and control; b) Promote sustainable land management and facilitate rehabilitation of degraded lands in open areas; c) Improve management of waste, chemicals and effluent; d) Information management systems and equipment for air quality monitoring installed across the country e) Improved environmental emergency response capacity, and f) Facilitate environmental Research and Development. 	Streamline environmental management and sustainability in other sectors of socio-economic development agenda of the nation
	To strengthen policy and legal framework for effective environmental management in key sectors	Environment	<ul style="list-style-type: none"> a) Carry out systematic targeted training in application of tools for integration of environment and natural resources management in selected sectors and provinces; b) Facilitate the development and implementation of sector and provincial specific environmental integration and climate change adaptation and mitigation guidelines and programmes; c) Develop and implement a sector wide environmental education, public awareness and advocacy campaign on key environmental issues; d) Create an environment fund for promoting resource mobilization and investment for effective environmental management, and e) Development an investment framework and financing strategy for sustainable land management. 	
	To mainstream disaster risk management in priority sectors	Disaster Risk Management	<ul style="list-style-type: none"> a) Develop early warning information system and information dissemination; b) Establishment of district-based vulnerability and risk profiles; 	Sustainable planning and management of natural resources and extreme events

Policy, Strategy and National Plan	Objectives	Priority Areas	Key Actions/Activities	Relevance to SCP
Sixth National Development Plan, 2011 - 2015	To mainstream disaster risk management in priority sectors	Disaster Risk Management	<ul style="list-style-type: none"> c) Establish and update districts and provincial disaster management plans; d) Participate in formulation of land use plans; e) Mainstreaming disaster risk management in infrastructure development, Agriculture, Health and Local Government and Housing, Energy and Education, and f) To enhance coordination. 	Sustainable planning and management of natural resources and extreme events
	To increase electricity generation capacity by at least 1,000 Mw and build appropriate transmission lines	Electricity	<ul style="list-style-type: none"> a) Expand and Improve infrastructure for electricity generation, transmission and distribution; b) Establish an open and non-discriminatory transmission access regime in the electricity industry; c) Implement a Cost-Reflective Electricity Tariff Regime, and d) Adopt the Electricity Grid Code. 	Increase access to electricity to the majority of the Zambian population
	To increase electrification levels in the Rural Areas of Zambia to 15.0 percent		Implement the Rural Electrification Master Plan (REMP).	Increase access to electricity to the majority of the Zambian population
	To expand the use of renewable and alternative energy in the country's energy mix	Renewable energy, alternative energy and biomass	<ul style="list-style-type: none"> a) Promote the development and use of solar technology systems; b) Introduce an appropriate cost-effective renewable energy feed-in tariff; c) Promote the production of electricity from geothermal energy; d) Promote the use of bio-gas for cooking, lighting and electricity generation, and e) Promote the use of radioactive energy minerals for long-term energy production. 	Promotion the use of sustainable sources of energy for social and economic development

Policy, Strategy and National Plan	Objectives	Priority Areas	Key Actions/Activities	Relevance to SCP
Sixth National Development Plan, 2011 - 2015	To increase the use of bio-fuels as a substitute to mineral fuel by 10% and 5%, for Bio-ethanol and Bio-diesel respectively.	Renewable energy, alternative energy and biomass	a) Promote the use of bio-fuel switches for all stationary engines; b) Establish bio-fuels blending ratios; c) Develop innovative financing mechanisms; and d) Promote the manufacturing of oil extraction technology	Increase access to electricity to the majority of the Zambian population
	To develop a rational and implementable approach to improve sustainability of bio-mass energy supply and raise end-user efficiencies		a) Develop a Bio-mass Energy Strategy; and b) Promote bio-mass gasification electricity generation and co-generation	Promotion the use of sustainable sources of energy for social and economic development
	To ensure that major industrial sectors, public institutions and households bring their energy intensities in line with internationally acceptable standards and best practices	Energy efficiency and management	Develop and implement an Energy Efficiency Strategy.	Energy efficiency and conservation
	To achieve sustainable water resource development for social and economic development	Water Resources Management and Development	a) Conduct feasibility studies for the development of water resources infrastructure for priority projects for agriculture farm blocks, irrigation dams, large multi-purpose dams; hydro-power dams, springs and ground water development, and b) Strengthen infrastructure development programmes to cater for increase in water demand in all the key economic sectors (agriculture, water for strategic institutions and disaster mitigation, hydro-power etc.)	Increased access to water of adequate quantity for domestic, industrial and agricultural uses for social economic development
	To ensure effective water resources management at catchment, regional and national		Provide and implement an appropriate policy, legal and institutional framework for integrated water resources Integrated Water Resources Management (IWRM)	Efficiency use of water

Policy, Strategy and National Plan	Objectives	Priority Areas	Key Actions/Activities	Relevance to SCP
Sixth National Development Plan, 2011 - 2015	To develop innovative approaches and appropriate technologies for the effective management of the nation's water resources	Water Resources and Sanitation Management and Development	<ul style="list-style-type: none"> a) Conduct applied research in water management and development to enhance socio-economic advancement; b) Conduct demand driven surveys; Strengthen the national hydrological network for water resource survey and institutional capacity for hydro-meteorological and ground water monitoring; and c) Conduct applied research in water resources management and development for climate change adaptation and the enhancement of socio-economic development. 	<p>Efficiency use of water</p> <p>Education for sustainable lifestyles</p>
	To develop innovative approaches and appropriate technologies for the effective management of the nation's water resources		<ul style="list-style-type: none"> a) Conduct applied research in water management and development to enhance socio-economic advancement; b) Conduct demand driven surveys; c) Strengthen the national hydrological network for water resource survey and institutional capacity for hydro-meteorological and ground water monitoring; and d) Conduct applied research in water resources management and development for climate change adaptation and the enhancement of socio-economic development. 	
	To provide adequate, safe and cost effective water supply and sanitation services with due regard to environmental issues		<ul style="list-style-type: none"> a) Enhance the implementation of the Water Sector Master Plans; b) Infrastructure development for sustainable RWSS service delivery and protection of the environment; c) Enhance capacity in effective planning, implementation and monitoring of programmes for RWSS service delivery; d) Develop and provide sustainable water supply services in urban and peri-urban areas; 	Strengthen policy and institutional framework for water supply and sanitation service providers

Policy, Strategy and National Plan	Objectives	Priority Areas	Key Actions/Activities	Relevance to SCP
Sixth National Development Plan, 2011 - 2015	To diversify and attain national and household food security	Crops	<ul style="list-style-type: none"> a) Promote high yielding seed materials; b) Promote soil improvement practices; c) Improve farm management practices; d) Enhance control of crop pests and diseases; e) Promote and strengthen community participation in improving productivity through cooperatives and farmer organizations; f) Promote agricultural mechanization (through appropriate technology); g) Support the generation and dissemination of early warning data and agricultural statistics; h) Promote crop diversification; i) Support farm block development; j) Promote and strengthen equal participation of male and female farmers in improving production throughout-grower schemes; k) Promote equitable and reliable access to agricultural land; l) Establish mechanisms for regular stakeholder consultations in research and extension; m) Promote PPPs in research, infrastructure development and programmes; n) Promote participation of farming communities in the uptake of proven agricultural practices such as conservation farming through enhanced extension services, and o) Enhance the capacity of DRM in the sector 	Ensuring food security by improving yields through use of sustainable crop management practices
	To promote soil management for sustainable agricultural production and growth	Agricultural Land Use	<ul style="list-style-type: none"> a) Mainstream climate change adaptation and develop mitigation action plan and measures including vulnerability assessment and risk management; b) Promote appropriate conservation farming methods; c) Promote and strengthen participatory land use planning and management; d) Promote sustainable utilization of wetlands and dambos; 	Ensuring food security by improving land management practices

Policy, Strategy and National Plan	Objectives	Priority Areas	Key Actions/Activities	Relevance to SCP
Sixth National Development Plan, 2011 - 2015	To promote soil management for sustainable agricultural production and growth	Agricultural Land Use	<ul style="list-style-type: none"> a) Promote efficient water utilization for sustainable agricultural growth; e) Promote water harvesting technologies such as f) dams and weirs, and g) Upgrade skills of technical and professional staff in research and extension services training. 	Ensuring food security by improving land use management practices
	To increase production and productivity in the mines	Mining	<ul style="list-style-type: none"> a) Ensure a stable regulatory framework; b) Facilitate access to capital and equipment; c) Increase extension services to small-scale miners; d) Provide incentives to small-scale miners particularly gemstone miners; e) Enhance skills training of miners in production, value addition and marketing; f) Improve availability of geological and mining information; g) Mitigate environmental impact of mining; h) Develop mining safety and environmental impact mitigation training, and i) Enhance the capacity of DRM in the sector. 	Sustainable exploitation of mineral resources to increase national wealth
	To promote sustainable exploitation and management of energy minerals	Development of Mines	<ul style="list-style-type: none"> a) Establish the Hydrocarbon Unit; b) Formulate relevant policies and legislation for energy minerals, and c) Mitigate environmental impact of mining. 	
	To include water variability considerations	Exploitation of Energy Minerals	<ul style="list-style-type: none"> a) Include possible water scarcity considerations in the designing of mining projects and tailing systems, and b) Include possible flooding conditions during design of tailing and effluent discharge systems. 	
	To promote sustainable forest and land management practices	Forestry Management	<ul style="list-style-type: none"> a) Establish and expand exotic and indigenous Plantations, and b) Promote village and school nurseries and establish woodlots. 	Sustainable forest management

Policy, Strategy and National Plan	Objectives	Priority Areas	Key Actions/Activities	Relevance to SCP
Sixth National Development Plan, 2011 - 2015	To promote sustainable forest and land management practices	Reforestation and Afforestation	<ul style="list-style-type: none"> a) Promote sustainable land management practices including erosion control, water management and soil fertility management; b) Develop an investment frameworks for sustainable land management; c) Formulate an integrated financing strategy for sustainable land management; and d) Promote the use of agronomic soil conservation measures. 	Sustainable land management practices
Environment and Natural Resources Management and Mainstreaming Programme	<p>Supporting development of the national capacity to integrate ENR into development activities and to identify, plan, finance and implement ENR improvement. This will be achieved through:</p> <ul style="list-style-type: none"> • Supporting MTENR to provide the tools (policy and legislative frameworks, information and databases) to be used by other government agencies to mainstream environmental and natural resources management into their development activities, and • Supporting implementation of national development priority interventions that contribute to reversing environmental damage or natural resource protection or enhancement 	Capacity Development	<ul style="list-style-type: none"> a) Strengthen and further integration of management and decision-making systems in the ENR sector; b) Build the organization and prepare the legislative tools, information and guidance that MTENR needs in order to take a lead in the sector; c) Support the sectors or regions to undertake studies or produce guidance that will have broad relevance for the national effort to mainstream environment; d) Provide the stimulus that leads the sectors and regions to devote more of their own budgets to ENR activities. 	<p>The development of legislative tools, information and guidance will be fundamental in ensuring sustainable management of the environment and natural resources.</p> <p>Mainstreaming of ENR sector in the development agenda will help advance sustainable consumption and production issues in the national plans.</p>
		Establishment of an Environmental Fund	<ul style="list-style-type: none"> a) Support projects that will contribute to improving, protecting or sustainably utilizing the environment through investments that contribute to the livelihood of poor people; b) Investment fund to target poor communities, men, women and children, directly and promote sustainable community-based actions in poor areas; e) Support the development of a permanent environmental fund through development of regulations and establishing an institution that will be able to mobilize finances and sustain itself to continue financing ENR projects indefinitely 	<p>Supported projects will contribute to poverty reduction and ultimately contribute to sustainable utilization of natural resources.</p>

Policy, Strategy and National Plan	Objectives	Priority Areas	Key Actions/Activities	Relevance to SCP
National Conservation Strategy	<p>To satisfy the basic needs of all the people of Zambia, both present and future generations, through the wise management of resources.</p> <p>Objectives:</p> <p>a) Ensure the sustainable use of Zambia's renewable natural resources</p> <p>b) Maintain Zambia's biological diversity</p> <p>c) Maintain essential ecological processes and life-support systems</p>	Energy	Encouragement of transfer from non-renewable, polluting and foreign exchange-dependent energy forms towards renewable forms together with an increase in the use of the former.	This Strategy promotes the use of renewable energy resources as well as sustainable water use practices – strategies aimed at conserving resources
		Water	Multi-purpose development and conservation of water resources and increased rainwater harvesting and irrigation.	
		Agriculture	Multiple-use practices such as agro-forestry and systems including aquaculture, increased active soil and water conservation, more efficient and ecologically sound use of inputs, and developing a framework for more integrated extensions	
National Solid Waste Management Strategy for Zambia	<p>The overall goal is to improve the environmental quality through the development and implementation of an efficient and sustainable waste management system. Other objectives include:</p> <p>a) Minimize generation of waste;</p> <p>b) Maximize the collection efficiency of waste;</p> <p>c) Reduce the volume of waste requiring disposal and maximize the economic value of waste, and</p> <p>d) Develop and adopt environmentally sound treatment and disposal methods/ practices.</p>	Solid waste	<ul style="list-style-type: none"> • Supporting programmes to enhance cleaner production among industry including the mining sector • Encouraging industry to adopt non-regulatory tools such as ISO 14001. • Development of a cleaner production centre in the country that is self-sustaining with support from industry • Promotion of source separation at household level • Development of anti-litter programmes • Supporting and promoting investment in recycling activities as a means for waste reduction or minimization • Encourage separate storage of wastes of a different nature and composition to enhance recovery of useful materials and prevent cross contamination • Encouraging local authorities to involve private sector-participation • Mobilizing and coordinating financial resources for infrastructure development 	Sustainable waste management through source reduction, re-use, pretreatment and recycle and disposal

Policy, Strategy and National Plan	Objectives	Priority Areas	Key Actions/Activities	Relevance to SCP
National Policy on Environment	<p>A national policy on environment that supports the Government's development priority to eradicate poverty and improve the quality of life of the people of Zambia. Objective:</p> <p>To ensure that national, provincial and district development plans integrate environmental concerns, in order to improve environmental management and ensure sensitivity to local concerns and needs.</p>	Environmental planning	<ul style="list-style-type: none"> (a) Conduct national awareness on the importance of the efficient, sustainable and equitable use and management of the environment and natural resources; (b) Embrace Environmental Management Plans in all development activities at all levels of development and by all stakeholders to ensure sustainable environmental management; (c) Promote the adoption of principles of sustainable development in development and investment plans; (d) Support the development of a national integrated database incorporating Geographical Information Systems (GIS) and Remote Sensing (RS) information. 	The policy ensures that environmental planning is integrated in development planning as a means of ensuring that the resources that are necessary for economic and development are available in such quantities and quality for use
National Agriculture Policy	To promote development of an efficient, competitive and sustainable agricultural sector, that assures food security and increased income.	Sustainable and environmentally sound agricultural practices	<ul style="list-style-type: none"> a) Improved use of available water resources by greater utilization and adoption of irrigation where it is economically viable; b) Promote sustainable and cost effective agricultural practices; c) Promote environmental-friendly farming systems such as conservation farming, afforestation, and the use of green manure; d) Promote agro-forestry. 	The policy promotes sustainable agricultural practices through efficient use of resources such as water and energy in order to promote a competitive agricultural sector and ensure food security
		Bio-diversity, conservation of aquatic eco-system and sustainable utilization of natural resources	<ul style="list-style-type: none"> a) Regulating access (collection and exchange) to local plant, fisheries and livestock genetic materials; b) Developing measures to conserve and effectively locally available agro-biodiversity. 	

Policy, Strategy and National Plan	Objectives	Priority Areas	Key Actions/Activities	Relevance to SCP
Water Policy	<p>To optimally harness water resources for the efficient and sustainable utilisation of this natural resource to enhance economic productivity and reduce poverty. The objectives:</p> <p>a) To develop water resources to mitigate impacts of extreme hydrological events such as floods and droughts;</p> <p>b) To ensure improved access to water and sustainable development of the water resources; and</p> <p>c) To ensure sustainable development of the water resources.</p>	Water resources development	<p>a) Promote and facilitate development of surface and groundwater resources to improve access;</p> <p>b) Regulate the development of water resources and integrate other sector needs such as agriculture, tourism and hydro-power;</p> <p>c) Establish a programme for construction and rehabilitation of dams and weirs with emphasis on multi-purpose use.</p>	The strategies in the Water Policy ensure adequate provision of water for other industrial sectors and improve access to water by the general public
National Energy Policy	<p>To provide well developed, managed, reliable and sustainable energy services for the improvement of the quality of life of all Zambians by ensuring</p> <p>To ensure environmentally sustainable exploitation of the biomass resource by ensuring efficiency through better management and introduction of new sources such as bio-fuels.</p>	Biomass	<p>a) Raising public awareness on the benefits and opportunities of other modern biomass energy sources and develop capacity for their implementation;</p> <p>b) Improve the technology of charcoal production and utilization;</p> <p>c) Promote appropriate alternatives to woodfuel and reduce its consumption through encouraging the use of alternative renewable sources of energy.</p>	The policy is aimed at ensuring access to energy by the general public as well as industry. Furthermore, the promotion of renewable energy technologies will result in the conservation of energy for other productive uses such as mining and agriculture
	To expand generation and transmission capacity and also increase access to Electricity.	Electricity	<p>a) Increase generation and transmission capacity for local and regional markets;</p> <p>b) Improve accessibility and service delivery to households and SMEs.</p>	

Policy, Strategy and National Plan	Objectives	Priority Areas	Key Actions/Activities	Relevance to SCP
National Energy Policy	To address barriers to wider dissemination of renewable energy sources and also to increase their deployment.	Renewable energy sources	<ul style="list-style-type: none"> a) Ensure availability of data and information on market demand, resource; b) Assessment and applicability of renewable energy technologies; c) Promote renewable energy technologies for electricity generation through encouraging research in utilization of available technologies and encouraging pilot projects. 	<p>The policy is aimed at ensuring access to energy by the general public as well as industry. Furthermore, the promotion of renewable energy technologies will result in the conservation of energy for other productive uses such as mining and agriculture</p>
	To promote efficient use of energy resources, and substitution.	Energy management	<ul style="list-style-type: none"> a) Promote efficient energy use practices in all sectors of the economy by mounting publicity campaigns on energy conservation; b) Substitute, wherever possible, local energy resources for imported ones by increasing the contribution of renewable energy in the country's energy mix; c) Popularize energy management through liaising with training providers to incorporate energy conservation concepts and practical activities in education curricula; d) Encourage the use of energy efficient equipment. 	

APPENDIX 2: PROJECT CONCEPT NOTES

The priority areas discussed below indicate the main objectives, justification for the project, the main activities that will be undertaken, the outputs and the verifiable indicators. These projects have been identified based on possibility of replication, synergies and mainstreaming of SCP, availability of existing knowledge in implementing institutions and potential for maximum impact.

PROJECT NOTE CONCEPT 1

Establishment of a National Cleaner Production Centre

Objective

To establish an independent Cleaner Production Centre (CPC) in Zambia to support Zambian companies in their effort to improve environmental performance and increase the profits of their companies.

Project Justification

In Zambia many companies are struggling for their survival. The liberalization of the economy leading to a free entry of imports coupled with rising energy costs have further weakened the industrial sector. Many firms have been unable to withstand competition and have to close or downsize operations contributing to rising poverty. Industry faces among other constraints unfair competition, lack of effective long term capital, high cost of inputs such as energy, lack of industrial skills and inadequate infrastructure. Additionally, the mines and industrial activities have resulted in huge impact on the environment and public health.

However, the previous CP programmes have achieved significant environmental improvements and considerable savings for the industry. The programmes have also built up an extensive CP capacity, both with regards to administrative and professional skills and competence. Further to this, the external review of IPPP Phase II gave high marks for the CP component and strongly suggested that activities should be continued. The challenge now is to institutionalize CP activities in Zambia by establishing a sustainable CPC in Zambia to follow up the success and continue the economic and the environmental improvements in the Zambian industry.

The objective therefore is to establish a CPC to safeguard the CP knowledge and to train and assist Zambian companies in CP and environmental projects.

The Cleaner Production Centre will reduce industrial pollution in Zambia through efficient use of raw materials, energy, water and improved environmental management practices of eliminating toxic and dangerous materials and reducing the quantity and toxicity of all emissions and discharge of wastes at source.

Project specific activities

The implementation of this component of the SCP pilot project in Zambia will require undertaking the following activities, thus:

- Establish the CP institution
- Develop a strategic plan for the CP institution
- Operationalise the strategic plan for the CP institution
- Develop and implement the marketing and business strategy
- Develop and implement management and financial systems
- Develop and implement CP training programmes

Project strategy and institutional co-ordination

The establishment of the Centre will be coordinated by the Environmental Council of Zambia (ECZ) and will also call on international experience through collaboration with the United Nations Industrial Development Organisation (UNIDO).

In future the CPC will serve as an independent agency mandated to promote and provide CP services to reduce environmental impacts and increase the profit of Zambian companies. The CPC will build on the already established contacts with the authorities, stakeholders and the 71 companies that have participated in former CP programmes, as well as further develop a network with other companies and interested parties.

Expected output

This project will establish a commercial, independent and sustainable CPC that will serve as an environmental competence centre for Zambian companies, both with regards to environmental training and advisory support.

A CPC in Zambia will contribute to a sound management of the environment and biological diversity and it will help to solve environmental problems that particularly affect the poor. It will contribute to further improving environmental performance in Zambia and to increase the business performance.

Target beneficiaries

The target beneficiaries of this project will be:

- Zambian companies through improved environmental and improved economic performance as well as compliance to environmental legislation
- Zambian society at large through reduced impacts on the environment and health of the local population as well as cost savings from companies
- The environment through reduced environmental impacts
- Local CP experts who will provide consultancy and training to companies

Verifiable indicators

- Fully operational CPC centre
- Number of training programmes held per year
- Number of industries certified
- Successful CP programmes implemented by the participating industries
- Total amount of money saved per year by participating industries

Monitoring and evaluation

Project status reports will be prepared in cooperation with the CP Centre Director and delivered every half year (January and June).

The potential financiers such as UNIDO will conduct project reviews and evaluation of project progress and performance.

The project will be subject to annual reviews by the respective Executive Board. The CP Centre Director will in cooperation with the institution providing technical assistance submit quarterly reports, and for the reporting on the results of the CP in-plant-assessments, the Centre will apply the UNIDO NCPC format. Each year the Director of the CP Centre will prepare an annual report, which is used as input for reporting to the funders and the CPC network. The director will participate in the annual CPC network meetings to report on the progress of the National CPC.

PROJECT CONCEPT 2

Demand side management of water use

Objective

To promote the sustainable management of the demand side of water-use with a view to facilitate the provision of water of adequate quantities and good quality for use by the general community.

Justification

Increase in the population of the country especially in urban areas has led to problems of accessing sufficient clean water supply and sanitation services. Development of infrastructure for water supply and sanitation has not matched this growth. This is against the backdrop of Zambia having some of the best surface and underground water resources in Africa with many rivers, lakes and dams, which remain largely unexploited. This is largely due to the fact that the supply of water and provision of sanitation services is facing many challenges.

Urban development including development in recharge areas have resulted in reduced water retention and increase in direct runoff over short periods resulting in flush floods especially where drainage is poor. As a result, poorly managed wastes from surrounding areas contribute to the blockage of drains, pollution of water and outbreak of diseases such as cholera. Groundwater is more at risk in large settlements because of lack of proper sanitation facilities and solid waste management systems. Despite the growth in population, there has been no corresponding increase in sewage infrastructure and most of the existing ones are in a poor state of repair. The prevalence of outbreaks of these diseases is commonly in the peri-urban and rural areas.

In addition to the above challenges, the commercial utilities are beset with low investment flowing into the sector, dilapidated and inadequate infrastructure, low sanitation coverage to water pollution particularly from mining activities and high unaccounted for water. On average, CUs accounts for less than 55 per cent of what the water produced, thereby negatively affecting the availability of the commodity to other needy areas.

As a way of mitigating against this shortage and ensuring quality water resources, there is therefore a need to put in place measures aimed at influencing consumer behaviour so as bring about efficient water use on the demand side of water use.

Project specific activities

The following are the proposed activities to be implemented:

- Develop awareness raising materials on efficient water use;
- Carry out awareness raising campaign to educate the public on efficient water use;
- Promote water recycling, re-use and rainwater harvesting at household and institutional levels;
- Implement water metering at consumption points, and
- Implement regular repair of leakages on pipe networks

Project strategy and institutional coordination

The project will be implemented by the CUs in collaboration with NWASCO, the regulator of urban water supply and sanitation. The project is meant to build-on the various activities that are being implemented by the CUs with a view to improve the efficiency of the delivery of the services as well as improve the water and sanitation coverage in urban areas. The project is meant to specifically address issues that are fundamental in improving the overall quantity of the water supply available without necessarily embarking on costly actions to increase the supply i.e. developing new sources of water supply.

The proposed activities to be undertaken will easily be integrated into the work plan and budgets of the CUs and will not necessarily need acquisition of additional staff. Thus, although they could be undertaken as part of the daily work schedules of the CUs, the expected impacts in making available additional water for supply to the needy areas will be enormous and in turn this will save the CUs huge amounts of moneys since the need to invest in new water supply sources will be delayed. Furthermore, there will be increased revenues for the CUs at the same time the general public will make huge savings by implementing demand management techniques.

Expected outputs

This project will contribute to improved water use efficiency and generally contribute to the increased availability of water to many more consumers.

Target beneficiaries

The implementation of this project will benefit both the CUs as well as the general public. The benefits will be both in terms of economic as well as access. It is anticipated that through the implementation of this project, the CUs will increase the overall revenue through new customers. This is in addition to the savings made from reduction in an accounted for water. The general public, on the other hand, will benefit through savings on monthly water bills. At the same time, supply will be much more reliable with minimum rationing and consequently more consumers will be supplied with the water.

Verifiable indicators

- Per cent of unaccounted for water reduced by at least 10% in the first year
- Metering of consumption increased by at least 20% in the first year
- Water network coverage increased by at least 15% in the first year
- Average time of water rationing reduced to 7 hours per day in the first year
- Use of little-fits (water saving devices) at consumption points increased by at least 10% in the first year

Monitoring and evaluation

The performance of the CUs will be evaluated through the established monitoring and evaluation framework set out by NWASCO. However, project progress reports will be developed and circulated. This will be done on a quarterly basis. Furthermore, the project will be subject to annual reviews.

Monitoring implementation and performance will be done at a much frequent basis, preferably every month. This will be critical in steering the project forward and ensuring that the milestones are attained. This system will allow detecting divergence at the early stage and allow for quick intervention.

PROJECT CONCEPT 3

Demand side management of energy use

Objective

To introduce and promote demand side management measures of energy use.

Justification

Zambia is experiencing a rise in demand for energy for industrial, commercial and household consumption. This demand has been due to developments in the mining sector, industrial development and Zambia's rising population. The country is facing power deficit and this situation is worsened by the fact that new investments to develop new energy projects have not kept pace with the increase in demand for energy.

For most part of 2008, the Zambian electricity sector endured unprecedented power outages as a result of demand outstripping supply which necessitated load shedding. With net generation sent out recorded at 1,300MW and peak demand estimated at 1,500MW reduced generation capacity could not cope with the increased demand for electricity.

With about 30 per cent of Zesco Limited residential customers being un-metered, load-shedding poses a great challenge as these customers are still being billed full monthly fixed charges even though they go without power for long periods of time on several occasions.

In addition to the power deficit vis-à-vis increased demand and lack of new investment in the sector, the energy sector is experiencing hiked tariffs as well as poor state of transmission and distribution infrastructure.

In view of the challenges above it is therefore necessary that measures are put in place to use energy efficiently and to conserve it for more productive uses such as in agriculture, manufacturing and mining. Managing the demand side of energy use may help to cushion the power deficit the country is experiencing, particularly in view of the rising energy costs.

Project specific activities

In order to successfully implement the demand side management of energy, education and awareness raising programmes will be critical. The general public will need to be educated on the benefits of using the energy efficiently. This will take the form of theatrical performances and drama shows, discussions on both radio and television and, competitions. Additional activities to be implemented shall include:

- Develop awareness raising materials on efficient use of energy;
- Undertake awareness raising programmes to sensitize the public on the efficient use of energy;
- Reorient education curricula to include efficient energy use;
- Promote the use of energy efficient appliances and reliance on renewable sources;
- Promote the establishment of energy conservation clubs;
- Collaborate with government to introduce incentives aimed at promoting the use energy efficient equipment, and
- Undertake pre-paid metering at consumption points.

Project strategy and institutional coordination

Zesco Limited, through its Environmental Management Unit, will implement and coordinate the project. The project will link into Zesco's efforts in seeking a permanent solution to the soaring demands in the country's electricity requirement.

Demand for electricity in Zambia has gone up due to increased mining activities on the Copperbelt and North Western Province, and has led to electricity shortages. The permanent solution is the investment in new generation and transmission infrastructure. Part of the investment capital for the new infrastructure will need to be raised from tariffs. As such, between 2007 and 2010 a total of 55.3% increment in domestic tariff was approved by ERB.

Thus, as a way of ensuring that the general public continues to pay for the electricity supplied despite these high domestic tariffs, it is essential that Zesco Limited promotes activities that encourages efficient use of energy (electricity) and ultimately discourage electricity wastage.

Expected output

The adverse impact of power deficit will be moderated as a result of reduced load shedding. Energy will be saved and made available for other more productive uses such as in agriculture, manufacturing and mining.

Target beneficiaries

Zesco Limited is one of the key beneficiaries from implementing demand side management of energy since it is obvious that it will be able to cope more effectively despite Zambia's deficit in the electricity requirement. Other beneficiaries include:

- General public;
- Industries (mining, manufacturing, agriculture), and
- Commercial and trading sector

Verifiable indicators

- Educational programmes on efficient use of energy developed and implemented in 15 schools and televised over 13 weeks period on national television in the first year;
- Number of incentives introduced by the government to promote use of energy efficient appliances;
- The use of energy efficient appliances increases by 10% in the first year;
- Quantity of energy (KWh) saved and is available for other uses;
- At least 15 energy conservation clubs established in schools and are functional in the first year.

Monitoring and evaluation

An Inter-sectoral committee comprising key stakeholders will be responsible for monitoring and evaluation of project implementation. The committee will comprise members from ECZ, ERB, ZAM, ZACCI and MCTI whose role will also be to oversee the project implementation. Zesco Limited, through its environmental management unit will prepare progress report which will be submitted to the inter-sectoral committee. Project progress implementation will be documented through quarterly progress and annual reports.

Zesco Limited being the principle energy (electricity) producer, distributor and retailer, will particularly play a very significant and leading role in the M&E. This is particularly important because the project will be coordinated and implemented by Zesco Limited and hence will bear custody to the information and data regarding the project implementation.

PROJECT CONCEPT 4

Sustainable agriculture

Objective

To promote sustainable agriculture and improved crop yield while ensuring that environmental, economic profitability, social and economic issues are integrated in agriculture.

Justification

The Agricultural Sector is key to the development of the Zambian economy and will be the engine of growth for the next decade and beyond. Agriculture generates between 18-20 per cent of the Gross Domestic Product (GDP) and provides livelihood for more than 50 per cent of the population. The sector absorbs about 67 per cent of the labour force and remains the main source of income and employment in rural incomes will therefore result in overall poverty reduction and increased food security.

Some 75 per cent of Zambia's working population is engaged in agriculture, largely subsistence farming. Farming in Zambia is predominantly rain-fed with maize being the main food and cash crop. The agricultural sector remains underdeveloped and vulnerable to economic and weather fluctuations.

Even though Zambia has high agricultural potential, it has not been fully exploited due to a number of factors such as unfavourable weather patterns, macro-economic environment and sectoral policies. This high potential if fully exploited could significantly contribute to food security and economic growth.

Zambia has some of the best surface and underground water resources in Africa with many rivers, lakes and dams. This, with the addition of high potential underground water aquifers in many areas, offers excellent prospects for irrigation programmes. However, these water bodies are largely unexploited. Of the country's irrigation potential conservatively estimated at 423,000 hectares, only about 50,000 hectares are currently irrigated. Therefore, Zambia has a resource endowment for development of a wide range of crops, livestock and fish given the diversity of its agro-ecological zones.

Project specific activities

Policies in the sector have evolved over time. Fundamentally, the sector has been primed to be the economic engine of the nation. The emphasis is on increased food security through increased crop yield. In order to contribute to increased food security, the project will implement the following specific activities, thus:

- Streamline developed policies and strategies to promote sustainable agriculture
- Promote the use of organic manure and composite manure
- Promote water harvesting
- Promote small scale irrigation for improved food security by facilitating the rehabilitation of dams and weirs
- Promote use of renewable resources and on-farm inputs
- Advocate for the restructure of commodity and price to allow farmers to realize the full benefits of the productivity gains made possible through alternative practices

- Develop complementing strategies that influence consumer choices so that environmental quality, resource use and social equity issues are also considered in shopping decisions.
- Promote agro-forestry
- Promote the improvement of land and natural resources management through community education and outreach in land use planning and management on sustainable agriculture
- Promote best practices on energy efficiency and renewable energy technologies in agriculture

Project strategy and institutional coordination

The project will be coordinated by ZNFU in collaboration with MACO. ZNFU promotes and safeguards interests of its members in order to achieve sustainable economic and social development. The membership of ZNFU is wide and amongst the programmes and activities being implemented includes conservation farming, in addition to various financial support and credit schemes, among others.

MACO will use its well developed and anchored network of field and extension services. This will be vital in making certain that sustainable agriculture is practiced and is integrated at all levels of farming, be it subsistence, small scale, medium and commercial farming. Furthermore, through the use of the National Agriculture Information Services (NAIS), the benefits of sustainable farming practices will be documented on electronic media and demonstrated countrywide. Documentaries on best practices in sustainable agriculture will be filmed and transmitted (aired) on national television.

Expected output

The project once implemented is expected to result in the attainment of food security for the majority of households, conserve natural resources upon which agriculture is based, increase agriculture's contribution to total foreign exchange earnings, provide opportunities for employment and income generation. Overall, these attainments will contribute to food security, economic growth and poverty reduction.

Target beneficiaries

Achieving sustainable agriculture is the responsibility of all stakeholders in the sector. Furthermore, achieving food security will contribute to national economic development through income from food surplus and this will have a trickle-down effect on other sectors of economic development. Thus, the primary beneficiaries include both farmers and the general public.

Verifiable indicators

- Education programmes on sustainable agriculture developed and implemented by at least 75% of participating farmers by the end of the first year
- Number of awareness raising programmes on sustainable agriculture developed and rolled-out through electronic media
- Number of commercial farmers employing sustainable farming practices increases by 20% in the first year
- Number of small to medium scale farmers employing sustainable farming practices increases by 30% in the first year
- Amount of land under sustainable farming practices increases by a 30% in the first year

- Number of small scale farmers growing crops throughout the year increases by at least 10% in the first year
- Market share of crops grown from organic manure increases by at least 5% in the first year

Monitoring and evaluation

Monitoring of the project will be undertaken on a frequent basis. This shall be combined with the routine work schedules of the field and extension staff of MACO. Thus, the project will benefit from timely professional inputs from the field and extension staff of MACO. As a result, monitoring will form part of the day to day management of the project.

Routine reports will be generated by the implementation agents (ZNFU and MACO) and these will highlight the progress of the project.

The project will be evaluated at the end of the first year. This will offer stakeholders chance to assess the achievements of the project. The evaluation will be undertaken by a team drawn from ECZ, ZNFU, MACO, Food Reserve Agency (FRA) and the Zambia Consumer Association (ZACA).

PROJECT CONCEPT 5

Integrated waste management

Project objective

Improve the management of solid waste by promoting interventions aimed at reducing the amount of waste dumped at disposal sites.

Project justification

The rapidly increasing quantities of waste generated due to industrialization, population growth and inadequate investment in infrastructure has become a major concern for the country. The introduction of new consumer goods has also contributed to the problem of waste management in Zambia.

The management of waste in the country remains a big challenge. Scavenging and open air burning of waste is a common scenario in many districts. The number of disposal sites has not matched the amount of waste generated by many local authorities in the country. Out of the country's 73 districts, only a total of 16 districts had licensed municipal disposal sites. This situation indicates that waste management is still a challenge for local authorities.

Four main methods of waste disposal are practiced by households in Zambia and these are: waste collected through municipal waste management systems; indiscriminate disposal; waste disposed of in pits; open air burning and other methods such as recycling and reuse.

As waste management issues gain public awareness, concern has risen about the appropriateness of various disposal methods. Even though disposal will always be needed in the Zambian context the ideal way to reduce the stress on disposal systems is to reduce the amount of waste that is produced by placing emphasis on reduction, reuse and recovery before disposal. The project will be based on the concept of integrated waste management so that the waste constituents are recycled and reused to the maximum possible extent and the development of the local authority can take place in harmony with the environment.

Project specific activities

In the absence of reduction, reusing and recycling priorities in Zambia, all waste that is generated finds its way in the environment. In most cases than not, this waste is indiscriminately dumped in the environment and hence contribute to pollution. This project will, therefore, promote integrated waste management to improve the general management of waste in Zambia. Specific activities to be implemented include:

- Develop guidelines for waste recovering, reuse and recycling
- Promoting training of industry in CP methodologies to improve waste management practices
- Promote mechanisms encouraging waste separation at sources
- Encouraging community participation in waste management establishment of community based enterprises to assist with primary collection of waste
- Initiate awareness raising campaigns to promote positive consumer behaviour and sound waste management practices

- Dialogue with the government on the introduction of incentives to promote recycling in the country
- Operationalise the extended producer responsibility regulations and the Zambian Standard on Plastic
- Introduce carrier bags (and plastics) with capability of being recovered and recycled

Project strategy and institutional coordination

The project will be implemented by ECZ in collaboration with Local Authorities (LAs). ECZ regulates and enforces the waste management industry while the LAs are mandated to provide waste management services. The project will be implemented under the National Solid Waste Strategy for Zambia (NSWMS). The strategy proposes integrated approaches to address the problems of poor waste management and has been developed under the premise that if systematic improvements were introduced at the various stages in the waste cycle (from generation to disposal), the quantity of waste generated at each of the subsequent stages would be considerably reduced.

The project will thus be implemented with the full support of ECZ. This entails that resources (both human and financial) will be sourced within the ECZ framework of resource mobilization and will be subject to internal and external controls to ensure maximum quality. In addition to these resources, the project will be implemented with a view of up-scaling to a national programme and thus will benefit from inputs from media and civil societies.

Project expected output

Once implemented, the project will help reduce the overall quantity of waste disposed; at the same time help improve consumer behaviour leading to reduced waste. Furthermore, the positive spillover effects from this project will include increased recovering, reusing and recycling of waste; increased lifespan of the disposal sites; improved aesthetic beauty of the general environment; increased revenues to the general public.

Project beneficiaries

The beneficiaries will include the LAs, the general public and the environment in general. Industries involved in recycling of various materials will equally benefit from this project.

LAs will have reduced quantities of solid waste to handle and this will lead to improvements in SWM efficiency, at the less time it will prolong the lifespan of the disposal sites. Manufacturing industries engaged in recycling, on the other hand, will have a ready source of recyclable materials to use.

Project verifiable indicators

- Reduction, reuse and recycle guidelines developed and implemented by LAs by the first quarter of the first year;
- Overall quantity (tones) of waste disposed at disposal sites reduces steadily in each quarter in the first year;
- Overall quantity of waste recovered increases progressively in each quarter in the first year;
- Extended producer responsibility regulations operationalized by the first half of the first year;
- Number of companies trained in CP methodologies increases by 10% in each quarter in the first year;

- At least 5% savings by each industry by the end of the first year after implementing CP mechanisms;
- Incentives promote waste reduction, reusing and recycling introduced by the government in the first half of the first year;
- Number of companies involved in waste recycling activities increases by at least 5% by the end of the first year, and
- Number of community based enterprises (CBEs) participating in waste reduction and recycling increases by at least 10% by the end of the first year.

Monitoring and evaluation

The monitoring and evaluation unit of the ECZ will be responsible for project evaluation. Monitoring will be undertaken on the regular basis by the ECZ inspectors and the officer from the LAs. Progress reports will be developed on a quarterly basis whilst the evaluation will be undertaken at the end of the first year of project implementation.

PROJECT CONCEPT 6

Education for sustainable lifestyles

Objective

To address the sustainability challenge through education that stimulates behavioural changes.

Justification

Most of the choices we make at home and at work - on energy use, transport, food, waste - have an impact on the environment. Therefore, to work towards achieving sustainable lifestyles, a paradigm shift is required in the way we live, how we buy and how we organize our everyday life.

For a long time we have focused on addressing the sustainability challenge from the production process point of view. It has become clear that sustainable production will not, by itself, bring about sustainable development. Equally important is addressing the environmental challenges associated with the selection, use and disposal of products by non-manufacturing consumers. Household consumption therefore forms an important part of the production-consumption chain, as it is the consumer who makes the final choice about which goods and services to consume.

Addressing the sustainability challenge should therefore include behavioural changes that entail empowerment of individuals and a concerted action of all societal actors, including governments, businesses, NGO, media and education. It requires changes at cultural, social, environmental and economic levels by using strategies that raise awareness and develop new values and visions for sustainable societies.

For sustainable lifestyles to enter our cultures and societies, to become part of our everyday life, they must be developed at all levels. There is a need to foster environmental education that encourages sustainable lifestyles. Education is an essential tool for achieving sustainability. Current economic development trends are not sustainable and therefore public awareness, education and training are key to moving society towards sustainability. This will make people aware of their surroundings and the consequences of the choices they make and therefore make the choices that do the least harm.

Project specific activities

This project on education for sustainable lifestyles is intended to influence positive change in attitude since attitudes are expected to change as a function of experience. Much as the focus will be devolved around youths as change agents, it will be imperative to understand factors influencing 'our unsustainable consumptions patterns' if these change agents will be equipped with the right tools to influence the behaviour and attitude. The project will therefore endeavour to undertake the following activities:

- Develop education and awareness materials to use by change agents
- Develop tools of communication
- Engage youths and tutor them on issues covering sustainable consumption and production

- Raise awareness on conservation of energy and water, reuse and recycling options, leisure activities, eating and drinking healthily to promote positive change
- Reorient existing education to address sustainable development
- Involve the youth and tap into the energy, motivation and creativity
- Use role models (actors, models, sport champions) to stimulate change

Project strategy and institutional coordination

The Environmental Council of Zambia working in collaboration with the Ministry of Education (MoE) will develop the resource materials and spearhead the implementation of the project. The involvement of the media, civil society groups such as Zambia Consumer Protection Association will be key to the successful implementation of the project.

Further corporation will be sought with the British Council in training and tutoring the youths in issues of sustainable consumption and production. The project will be piloted in at least 10 schools selected from Southern, Lusaka and Copperbelt provinces. Each school will be represented by a champion (a pupil), who will be working on a specific issue on SCP. The ECZ, British Council and MoE will provide the information, guidance and mentorship to the champions.

Project expected output

The expected outcome from the project is a knowledgeable population capable of making informed resource-management decisions. It is the goal of this project that this informed-resource management decisions will ultimately lead into attitude and behavioural change leading to adopting more sustainable consumption patterns and behaviours.

Project target beneficiaries

The beneficiaries include the general public and the environment as a whole. Furthermore, the MoE will benefit from education materials and tools on communication produced.

Project verifiable indicators

- At least 10 champions (pupils) trained and mentored by the first-half of the first year
- Tools of communication developed by the first quarter of the first year
- At least 13 television programmes aired on national television featuring the projects of the 10 champions in the second half of the first year
- The environmental science syllabus for basic and secondary school reoriented to include issues on sustainable consumption and production by the end of the first year

Monitoring and evaluation

Monitoring and evaluation will be undertaken by the combined team of the three implementing institutions (British Council, ECZ and MoE). Progress reports will form part of the project evaluation process. The suitability and effectiveness of the tools for communication will be evaluated against the impacts achieved. Improvements to both the implementing strategy and communication tools will be made before up-scaling the project to a national programme.

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