



Ministry of Lands and National Resources

National Climate Change Learning Strategy: Background Report

20th January, 2020

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Table of Contents

List of Acronyms and Abbreviation	4
EXECUTIVE SUMMARY	7
SECTION 1	9
INTRODUCTION	9
1.1 The One United Nations Climate Change Learning Partnership	10
1.2 The UN CC: Learn Project in Zambia.....	10
SECTION 2.....	11
CLIMATE CHANGE: INTERNATIONAL AND NATIONAL CONTEXTS.....	11
2.1 International Context.....	11
2.1.1 Paris Agreement.....	12
2.1.2 African Response to Climate Change crisis.....	12
2.2 Role of Education in combating Climate Change	15
2.2 National Context.....	16
2.2.1 NDC Implementation Progress.....	18
2.2.2 Mitigation.....	19
2.2.3 Adaptation	19
2.2.4 Approach for Adaptation Measures.....	20
2.2.5 Implementation Roadmap for the NDC	20
2.2.6 Time frame for NDC implementation.....	21
2.2.7 National Adaptation Plan (NAP).....	21
2.3 Climate Change Learning Context.....	21
2.3.1 Climate change education related activities.....	23
2.3.2 Climate change learning: gaps and challenges	24
SECTION 3.....	26
EXISTING PRIORITIES AND INITIATIVES	26
3.1 Policies and Strategies	26
3.2 Policy Measures	27
3.3 National priority areas for climate change	31

3.3.1	Agriculture Sector	31
3.3.2	Forestry Sector	31
3.3.3	Energy Sector.....	31
3.3.4	Education Sector	32
SECTION 4.....		33
LEGAL AND INSTITUTIONAL FRAMEWORKS.....		33
4.1	Legal Framework	33
4.2	Institutional Frameworks	35
4.2.1	Key Stakeholders for the climate change learning	37
SECTION 5.....		40
SUMMARY: CLIMATE CHANGE LEARNING		40
5.1	Global initiatives	40
5.2	Importance of climate change learning	42
5.3	Climate Change in Zambian School Curriculum Framework.....	42
5.4	Climate Change Learning in Higher Education Institutions	43
5.5	Conclusion.....	44
5.6	Recommendations	44
REFERENCES.....		46

List of Acronyms and Abbreviation

ACMAD	African Centre for Meteorological Applications for Development
AF	Additional Finance
AfDB	African Development Bank
AMCEN	African Ministerial Conference on Environment
AR	Assessment Report
AU	African Union
AUC	Commission of the African Union
CAEP	Climate Action Enhancement Package
CC	Climate Change
ccGAP	Climate Change and Gender Action Plan
CCNRMD	Climate Change and Natural Resources Management Department
CDM	Clean Development Mechanism
ClimDev-Africa	Climate for Development in Africa Programme
CO ₂	Carbon dioxide
COP21	21 st Conference of Parties
CP	Cooperating Partners
CRVA	Community Risk and Vulnerability Assessment
CSA	Climate Smart Agriculture
CSO	Civil Society Organisation
CTCN	Climate Technology Centre and Network
DDP	District Development Planning
DMMU	Disaster Management and Mitigation Unit
DNA	Designated National Authority
EbA	Ecosystem-based Adaptation
ECE	Early Childhood Education
ESD	Education for Sustainable Development
GCF	Green Climate Fund
GDP	Gross Development Product
GEF	Global Environment Facility
GHG	Greenhouse Gas
GPCs	Global Producing Centres
HNAP	Health National Adaptation Plan
ICCS	Interim Climate Change Secretariat
ILUA	Indigenous Land Use Agreement
INDC	Intended Nationally Determined Contribution
IPCC	Intergovernmental Panel on Climate Change
IUCN	International Union for Conservation of Nature
KNP	Kafue National Park
LECB	Low Emission Capacity Building
LEDS	Low Emission Development Strategies

Lunga WNP	Lunga West National Park
M&E	Monitoring and Evaluation
MLNR	Ministry of Lands and Natural Resources
MOGE	Ministry of General Education
MRV	Measurement/Monitoring, Reports and Verification
MTENR	Ministry of Tourism, Environment and Natural Resources
NAIS	National Agricultural Information Services
NAMAs	Nationally Appropriate Mitigation Actions
NAP	National Adaptation Plan
NAPA	National Adaptation Plan of Action on Climate Change
NAP-Ag	Nation Adaptation Plan for Agriculture
NBSAP2	Second National Biodiversity Strategy and Action Plan
NCCRS	National Climate Change Response Strategy
NDA	National Designated Authority
NDC	Nationally Determined Contribution
NDE	National Designated Entity
NEAPs	National Environmental Action Plans
NEPAD	New Partnership for African Development
NMT	Non-motorised Mode of Transport
NP	National Park
NPCC	National Policy on Climate Change
NPE	National Policy on Environment
NRDC	Natural Resources Development College
PPCR	Pilot Program for Climate Resilience
PS	Permanent Secretary
R&D	Research and Development
RCCs	Regional Climate Centres
RECs	Regional Economic Communities
REDD	Reducing Emissions from Deforestation and Forest Degradation
RSNDP	Revised Sixth National Development Plan
SADC	Southern Africa Development Communities
SCRALA	Strengthening Climate Resilience of Agricultural livelihoods in Agro Ecological Regions I and II Zambia
SCRiKA	Strengthening Climate Resilience in the Kafue Sub Basin Project
SDGs	Sustainable Development Goals
SEAs	Strategic Environmental Assessments
SeNDP/7th	Seventh National Development Plan
NDP	
SNC	Second National Communication
SNDP	Sixth National Development Plan
SPCR	Strategic Programme for Climate Resilience
SYR	Synthesis Report
TEVETA	Technical Education, Vocational and Entrepreneurship Trainings Authority

TNA	Technological Needs Assessment
TRALARD	Transforming Landscapes for Resilience and Development Project
UN	United Nations
UNCBD	United Nations Convention on Biological Diversity
UN-CC	United Nations - Climate Change
UNCCD	United Nations Convention to Combat Desertification
UN CC: Learn	The One United Nations Climate Change Learning Partnership
UNCED	United Nations Conference on Environment and Development
UNDP	United Nations Development Programme
UNECA	United Nations Economic Commission for Africa
UNFCCC	United Nations Framework Convention on Climate Change
UNFCCC LEG	UNFCCC Least Developed Countries Expert Group
UNICEF	United Nations International Children Emergency Fund
USAID	United States Agency for International Development
WMO	World Meteorological Organisation
WSSD	World Summit on Sustainable Development
WWF	World Wide Fund for Nature
ZANIS	Zambia National Information Services
ZCCN	Zambia Climate Change Network
ZEMA	Zambia Environmental Management Agency
ZEP	Zambia Education Project
ZMD	Zambia Meteorological Department

EXECUTIVE SUMMARY

Climate change is one of the most critical issues facing the world today. Zambia has experienced climate induced hazards which include drought, floods and extreme temperatures. Droughts and floods have adversely impacted food and water security, water quality, energy and livelihoods of the people, especially in rural communities. Such impacts are likely to compound the daunting economic and social challenges the country already faces.

Internationally, efforts are being put together to respond to the challenges of climate change. These include among others, development of global treaties such as the United Nations Framework Convention on Climate Change (UNFCCC). The UNFCCC main objective is to stabilise Greenhouse Gas (GHG) concentrations in the atmosphere to a level that would prevent dangerous human induced interference with the climate system. Zambia is one of the signatories to the treaty.

As a response to the international calls for concerted efforts to tackle effects of climate change, Zambia has established a long-term institutional structure for the coordination of climate change activities and programmes. The coordinating structure include: The Council of Ministers, the Steering Committee of Permanent Secretaries and the Technical Committee on Climate Change. Further the country has established a dedicated Department of Climate Change and Natural Resources in the Ministry of Lands and Natural Resources. The country has also embarked on the development and implementation of dedicated climate change related policies and strategies. They include the *National Policy on Climate Change (NPCC)*, the *National Determined Contribution (NDC)*, and is in the process of developing the *National Adaptation Plan (NAP)*. Various sector policies and programmes have mainstreamed climate change.

A number of global policies and plans have emerged from conferences and publications. Notable, among these are the Rio Earth Summit, World Summit for Sustainable Development, the World Summit on Education Forum, the United Nations Decade for Sustainable Development and the Sustainable Development Goals. These have influenced the design and implementation of climate change projects that focus on learning. The UNFCCC (Article 6) and the Kyoto Protocol (Article 10) both encourage governments to educate, empower and engage all stakeholders and major groups on climate change policies. Locally, the *Zambian revised curriculum framework, 2013* recognises Education for Sustainable Development, Environmental Education and Climate Change as some of the key cross cutting issues that must be taught from Early Childhood Education (ECE), primary and secondary schools. The higher education institutions are also offering climate change related courses. Other sector related training institutions such as those in the Ministry of Agriculture have mainstreamed climate change in their training programmes.

This background report is written in the context of the One United Nations Climate Change Learning Partnership (UN CC: Learn) initiative. The UN CC: Learn initiative was established in 2009 as a collaboration of more than 30 multilateral organizations committed to support and contribute to effective, results-oriented and sustainable learning to address climate change and related development challenges. The UN CC: Learn Project in Zambia is coordinated by the Climate Change and Natural Resources Department in the Ministry of Lands and Natural Resources. A Technical Team involving the Climate Change Department, the Zambia Environmental Management Agency (ZEMA) and the Zambia Climate Change Network (ZCCN) has been put in place to spearhead the development of the National Climate Change Learning Strategy. The implementation of the Zambia UN CC: Learn Project is supported by the United Nations Development Program (UNDP) Zambia Country Office, through the Nationally Determined Contribution (NDC) Support Programme.

This Background Report on National Climate Change Priorities and Relevant Capacity Development Goals and Initiatives in Zambia foregrounds the development of the National Climate Change Learning Strategy. The report is a compilation of national climate change priorities and relevant ongoing and planned capacity development initiatives which will form part of chapter one of the National Climate Change Learning Strategy.

SECTION 1

INTRODUCTION

Climate change is disrupting national economies and affecting lives, costing people, communities and countries dearly today and even more tomorrow. Weather patterns are changing, sea levels are rising, weather events are becoming more extreme and greenhouse gas emissions are now at their highest levels in history. Without action, the world's average surface temperature is likely to surpass 3 degrees centigrade this century. The poorest and most vulnerable people are being affected the most.

Zambia is already experiencing climate induced hazards which include drought, floods and extreme temperatures. Droughts and floods have increased in frequency and intensity over the past few decades and have adversely impacted food and water security, water quality, energy and livelihoods of the people, especially in rural communities. Southern and Western provinces are the worst affected. The two provinces have experienced declining rainfall and higher frequency of droughts and flashfloods in recent years. Droughts have caused crop failures and affected hydroelectricity generation. Insufficient infrastructure for water and sanitation causes disease outbreak during the flooding episodes as was the case in Lusaka in October, 2017. Food insecurity is also rampant. According to the Climate Investment Funds (2019), half of the population are undernourished or food deprived. Droughts in the 2018 - 2019 farming season left 2.3 million people in need of emergency food assistance.

Zambia is making every effort possible in taking action on climate change. It has developed dedicated national policies such as the National Policy on Climate Change (NPCC), the Nationally Determined Contribution (NDC), and has embarked on preparing the National Adaptation Plan (NAP). While National Adaptation Plan of Action (NAPA) of 2007 focused on urgent and immediate adaptation needs, NAP will focus on medium to long term adaptation. It will also help to integrate adaptation in the development planning process.

The country has also established a long-term institutional arrangement for the coordination of climate change. This includes the Council of Ministers, the Steering Committee of Permanent Secretaries and the Technical Committee on climate change. Further the country has established a dedicated Department of Climate Change and Natural Resources in the Ministry of Lands and Natural Resources. These efforts showcase the government's commitment to the integration of climate change across various sectors.

In 1992, international concerns about global warming were translated into the United Nations Framework Convention on Climate Change (UNFCCC). The main objective of the UNFCCC is to stabilise GHG concentrations in the atmosphere to a level that would prevent

dangerous human induced interference with the climate system. Zambia is a signatory to the UNFCCC (having signed the treaty on 11th June, 1992) and ratified it on 28th May, 1993.

1.1 The One United Nations Climate Change Learning Partnership

The One United Nations Climate Change Learning Partnership (UN CC: Learn) initiative has undergone three phases. Phase 1 saw the establishment of the initiative in 2009 as a collaboration of more than 30 multilateral organizations committed to support and contribute to effective, results-oriented and sustainable learning to address climate change and related development challenges. During Phase 2 (2011 – 2017) UN CC: Learn engaged in Climate Change Learning Programmes with developing countries in Africa, Asia and Latin America. Its purpose was to strengthen human resources, climate change learning, and skills development to advance the national climate change development agenda in the respective countries. During Phase 3 (2017-2020) implementation phase, the initiative has been expanded to include new member countries such as Zambia.

1.2 The UN CC: Learn Project in Zambia

The UN CC: Learn Project in Zambia is coordinated by the Climate Change and Natural Resources Management Department (CCNRMD) in the Ministry of Lands and Natural Resources. The Ministry has established a Technical Team involving the Climate Change Department, the Zambia Environmental Management Agency (ZEMA) and the Zambia Climate Change Network (ZCCN). The implementation of the project is supported by UNDP Zambia Country Office, through the Nationally Determined Contribution (NDC) Support Programme.

This *Background Report* has taken into account the following key aspects:

- Review of relevant national policies, laws, strategies, initiatives, and priorities on climate change learning. Particular attention will be paid to the NDC, NAPA and the development of the NAP;
- Identification of key stakeholders and preparation of a stakeholder analysis;
- Review of past and on-going climate change (CC) learning initiatives in Zambia.

Further the Report will form a key chapter of the *National Climate Change Learning Strategy*. It will also form the basis for planning and formulation of the *National Climate Change Learning Strategy* by a multi-sectoral consultation process.

This report is presented in five sections. Section 1 provides an overview of the report and an orientation to the importance of climate change. Section 2 describes climate change efforts from the international and local contexts. Section 3 discusses existing priorities and initiatives by means of policies and strategies. Section 4 is about the legal and institutional frameworks that the Zambia government has put in place to tackle climate change. Section 5 summaries climate change learning from the global and local perspectives.

SECTION 2

CLIMATE CHANGE: INTERNATIONAL AND NATIONAL CONTEXTS

2.1 International Context

In 1992, international concerns about global warming were translated into the United Nations Framework Convention on Climate Change (UNFCCC), a global treaty whose main objective is to stabilise GHG concentrations in the atmosphere to a level that would prevent dangerous human induced interference with the climate system. Climate change learning has received increasing international attention, in particular under the UN Framework Convention on Climate Change (UNFCCC). Article 6 of the UNFCCC recognises climate education and training in its broadest sense as central to raising global climate action, by ensuring that everyone in the World knows both the dangers of climate change and the enormous opportunities that arise by adopting the solutions to it. Besides the Convention, a variety of initiatives in the areas of climate change education and training, sustainable development, disaster risk reduction and aid effectiveness exist that can provide useful input for the development and implementation of a National Climate Change Learning Strategy (These are discussed in details in section 5 of this report).

The Synthesis Report (SYR) of the Intergovernmental Panel on Climate Change IPCC Fifth Assessment Report (AR5) provides an overview of the state of knowledge concerning the science of climate change, emphasizing new results since the publication of the IPCC Fourth Assessment Report (AR4) in 2007. The key messages of the Fifth Assessment Report indicate that:

- Human influence on the climate system is clear,
- The more we disrupt our climate, the more we risk severe, pervasive and irresponsible impacts,
- We have the means to limit climate change and build a more prosperous, sustainable living.

Table 2.1 Some selected highlights of the AR5

Potential Impacts of Climate Change	Projected climate changes	Sources of emissions:	Temperature continues to rise
<ul style="list-style-type: none">• Food and water shortage.• Increased poverty.• Increased displacement of people.	<ul style="list-style-type: none">• Continued emissions of greenhouse gases will cause further warming and	<ul style="list-style-type: none">• Energy production remains the primary driver of GHG emissions.• 35% Energy sector.	<ul style="list-style-type: none">• Each of the past 3 decades has been successfully warmer than the preceding decades since 1850.

<ul style="list-style-type: none"> • Coastal flooding. 	<p>changes in the climate system.</p> <ul style="list-style-type: none"> • Oceans will continue to warm during the 21st Century. • It is very likely that the Arctic sea ice cover will continue to shrink and thin as global mean surface temperatures • Global mean sea level will continue to rise during the 21st century. 	<ul style="list-style-type: none"> • 24% Agriculture, forest and land uses. • 21% Industry. • 14% Transport. • 6.4% Building sector. • (2010 GHG emissions). 	
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2.1.1 Paris Agreement

To strengthen the global response to the climate change threat, countries adopted the Paris Agreement at the 21st Conference of Parties COP21, which went into force in November of 2016. Parties to the Paris Agreement agreed to work to limit global temperature rise to below 2 degrees centigrade, with efforts to lower it further 1.5 degrees Celsius. Article 11 of Paris Agreement provides for education, training and public awareness.

The signing and ratification of the Paris Agreement was a significant step towards the carbon neutral, climate resilient and sustainable future that the world desires. The ratification of the Paris Agreement comes as the first major global step in bringing the 2030 Agenda for Sustainable Development that enshrines the 17 Sustainable Development Goals (SDGs) and its 169 targets into life, particularly SDG13 which deals with climate change. The Paris Agreement ratification also links into other global and continental agendas that include the Sendai Framework on Disaster Risk Reduction, Africa Agenda 2063 that prioritises climate change adaptation and the New Urban Agenda.

2.1.2 African Response to Climate Change crisis

African region

Scientific evidence and the scenarios projected by the world climate experts indicate that the African region will bear the greatest brunt and suffer the worst devastating effects from the virulent excesses caused by effects of climate change. The continent's vulnerability is aggravated by the interaction of 'multiple stresses', including high dependence on rain-fed agriculture, widespread poverty and weak adaptive capacity. Under a changing climate, the

significant increases in temperatures, sea level rise, shifts in weather patterns, and other extremes would have adverse effects on human health, natural ecosystems, and other environmental, social and economic impacts. These pose a big challenge to Africa's socio-economic development prospects and improvement in social wellbeing of citizens.

In order to counteract the numerous risks associated with climate change and contribute to the global efforts, African member states have devised a number of initiatives at regional and sub regional levels. These initiatives include African Ministerial Conference on Environment (AMCEN), the Framework of Southern and Northern Africa Climate Change Programmes, and the East African Community Climate Change Policy. Some individual African countries have also developed frameworks and strategies to address national climate change challenges. At the same time, four main climate related centers in Africa have been established. These are; the African Centre for Meteorological Applications for Development (ACMAD), the Agro-serving as World Meteorological Organisation (WMO) Regional Climate Centres (RCCs) for Africa for down scaling of products from WMO Global Producing Centers (GPCs) in the developing regional specific areas.

In the 1990s, especially after the Earth Summit in Brazil in 1992, many African Member States devised environmental related policies, often articulated in National Environmental Action Plans (NEAPs). However, these were neither accompanied by heuristic frameworks of implementation, nor by attempts to mainstream climate change into development policy in an integrated and holistic manner. Members of the African Union have endorsed many efforts to support the improvement of climate data, information, and services, including the endorsement of the climate strategy of the New Partnership for Africa's Development (NEPAD), and the convening of a historic meeting on "Climate Information for Development Needs: An Action Plan for Africa" in Addis Ababa, Ethiopia 2006, among others.

The July 2009 African Union Summit in Sirte, Libya adopted a decision to develop a comprehensive African Strategy on Climate Change, including development of sector technical backup data on the impacts of climate change its' cost to the economies of Africa and the amount of carbon sequestered in various African ecosystems. The vision of the African strategy is to provide the African Union (AU) as a whole, the Regional Economic Communities (RECs), Member States and other stakeholders with a reliable source of strategic guidance to enable them effectively address climate change challenges. The strategy also proposes to carry out other interventions to address some specific priority areas including adaptation and risk management, Nationally Appropriate Mitigation Actions (NAMAs) and as well as some specific cross-cutting issues.

The African Climate Change Strategy is organized around four thematic pillars:

- Climate Change Governance;
- Promotion of research, education, awareness raising and advocacy;

- Mainstreaming and integrating climate change imperatives in planning, budgeting, and development processes; and
- Promotion of national, regional, and international cooperation.

Other initiatives include the establishment of the Climate for Development in Africa Programme (ClimDev-Africa). ClimDev-Africa is a joint initiative of the African Development Bank (AfDB), the Commission of the African Union (AUC) and the United Nations Economic Commission for Africa (UNECA). The Programme was endorsed at regional meetings of African Heads of State and Government and by Africa's Ministers of Finance, Planning, Economic Development, and the Environment. Its purpose is to explore actions required in overcoming climate information gaps, for analyses leading to adequate policies and decision-making at all levels.

Southern African Subregion

Climate change projections for southern African region point to a warming trend, particularly in the inland subtropics; frequent occurrence of extreme heat events; increasing aridity; and changes in rainfall—with a particularly pronounced decline in southern Africa and an increase in East Africa. The region could also experience as much as one meter of sea-level rise by the end of this century under a 4 degrees Celsius warming scenario. Particularly vulnerable to these climatic changes are the rainfed agricultural systems on which the livelihoods of a large proportion of the region's population currently depend. As agricultural livelihoods become more precarious, the rate of rural–urban migration may be expected to grow, adding to the already significant urbanization trend in the region. The movement of people into informal settlements may expose them to a variety of risks, including outbreaks of infectious disease, flash flooding and food price increases. Impacts across sectors are likely to amplify the overall effect but remain little understood.

These projected climatic trends are anticipated to adversely affect a variety of socioeconomic sectors in southern Africa. Of particular concern to countries in the region are the projected impacts of climate change on agricultural systems, the quantity and quality of freshwater resources, coastal zones, fisheries, forests, biodiversity and tourism.

Adaptation Needs and Priorities

A number of common adaptation priorities have been identified by southern African countries through expert studies, National Communications to the United Nations Framework Convention on Climate Change (UNFCCC), National Adaptation Programmes of Action (NAPA), national strategies and other sources. These shared concerns stem in part, from the high dependence of many countries on climate-sensitive sectors, such as agriculture (crop and livestock), tourism, fisheries and forestry (Madzwamuse, 2010). All countries have identified agriculture as a priority area for adaptation action, with other common priorities

including freshwater resources, coastal zones and fisheries, disaster risk management, forestry and human health.

According to the Southern Africa Development Community (SADC) Regional Climate Change Programme document (2012) southern Africa lacks platforms and systems to share information on climate change. The document notes that there has been increased public awareness of the issue, and the growing political interest and commitment to mitigation and adaptation. There are said to have made the need for accurate communication more pressing. In many countries, decision-makers are seeking information from a wide range of disciplines on the potential impacts of climate change on environmental and socio-economic systems. Within SADC, a number of calls have been made for improved planning under climate change and for access to climate information as well as mitigation/air quality information, not least by the SADC Secretariat themselves. This search for information makes the development of the national climate change learning strategies inevitable by all member states.

In addition, the need for enhancing the SADC institutional and technical capacity has been echoed in various fora. The SADC Secretariat has emphasised the critical need to systematically coordinate fragmented climate change initiatives under different directorates' and ministries into a more holistic climate change programme to facilitate coordination and harmonisation. The SADC climate change learning strategy, currently being developed, will enhance coordination.

2.2 Role of Education in combating Climate Change

“Education provides the skills people need to thrive in the new sustainable economy, working in areas such as renewable energy, smart agriculture, forest rehabilitation, the design of resource-efficient cities, and sound management of healthy ecosystems. Perhaps most important, education can bring about a fundamental shift in how we think, act, and discharge our responsibilities toward one another and the planet” Heads of UNESCO and UNFCCC.

The Sustainable Development Goal (SDG) 4 on education and SDG 13 on climate change highlight the importance of education's role in climate change responses. Of particular relevance are Target 4.7 - “by 2030 all learners acquire knowledge and skills needed to promote sustainable development...” - and Target 13.3 – “improve education, awareness-raising and human and institutional capacity on climate change mitigation, adaptation, impact reduction and early warning”.

Other international agreements that highlight the important role of education in addressing climate change and sustainable development include:

- Article 12 of the Paris Agreement stresses that “Parties shall cooperate in taking measures ... to enhance climate change education, training, public awareness, public participation and public access to information ...”
- The Lima Ministerial Declaration on Education and Awareness-raising stresses the importance of including climate change in school curricula and development plans.
- Article 6 of the UN Framework Convention on Climate Change focuses on education, training, public awareness and access to information related to climate change.

The SADC Care and Support for Teaching and Learning framework – offers an effective vehicle to drive a response to the threat of climate change on the natural environment. Simply put, education provides social context to raise awareness, increase knowledge, strengthen adaptive capacity and encourage positive action amongst children, youth and school communities to reduce the risks associated with climate change.

Children and youth are critical stakeholders in the fight against climate change. It is for this reason that MIET AFRICA, a South African based non-governmental organisation, works with children and youth by supporting the provision of quality education for all. The organisation uses principles of social entrepreneurship to actively identify barriers to education achievement and to conceptualize and pilot ground-breaking, replicable interventions that address these challenges. It has partnered with UNITAR in tackling effects of climate change in southern African sub region.

Climate change education (CCE) is one of the responses to the effects of climate change. It helps learners understand the causes and consequences of climate change, prepares them to live with the impacts of climate change. It empowers learners to take appropriate actions to adopt more sustainable lifestyles. CCE helps policymakers understand the urgency and importance of putting mechanisms into place to combat climate change on a national and global scale. Communities learn about how climate change will affect them, what they can do to protect themselves from negative consequences, and how they can reduce their own climate footprint.

2.2 National Context

According to the United Nations, Zambia has experienced some of its worst droughts and floods in the last two decades. Recent climate trends based on records from 1960 to 2003 indicate that mean annual temperature has increased by 1.3 degrees Celsius since 1960, an average rate of 0.34 degrees Celsius per decade. On the other hand, the mean rainfall over Zambia has decreased by an average rate of 1.9 mm/month (2.3%) per decade since 1960. The future trends in the country are towards a higher average temperature, and a possible decrease in total rainfall.

An assessment of potential climate impacts shows that they will seriously undermine the efforts to improve the livelihoods of Zambians if left unaddressed (MTENR, 2007). The

assessment further analyzed the negative impacts of climate change on key economic sectors (Jain, 2007). Further studies have estimated Gross Domestic Product (GDP) loss over a 10-20 year mid-term planning horizon for agriculture productivity and its associated effects on poverty levels, the potential impact of an energy crisis, the higher cost of treating climate related diseases such as malaria and malnutrition, and the loss of natural resources which provide critical ecosystem services to urban, peri-urban and rural communities (MTENR, 2011).

Poor households have the least capacity to cope with food insecurity or economic shocks following natural disasters, which are likely to become more frequent with climate change. Climate change affects all sectors of the country’s development base i.e. forestry, Water, Agriculture, Wildlife, Tourism, Energy, Mining, and Health.

In view of climate change challenges, Zambia has put in place climate relevant policies and strategies which include:

- National Adaptation Plan of Action (NAPA) 2007,
- Intended Nationally Determined Contribution (INDC) 2015,
- National Climate Change Response Strategy 2010, and
- National Policy on Climate Change 2016.

Other policies and sectoral strategies that contribute to environment, climate change adaptation and mitigation have been developed. These are summarised in the timeline in Table 2.2.

Table 2.2 Timeline of Zambia’s Response to Climate Change

Climate Change Response/Activities			
2000-2005	2006-2010	2010-2015	2016 to date
<ul style="list-style-type: none"> • 1st National Communication • Initial engagement on CDM (World Bank) • Research on impacts of climate change on hydro power in the Zambezi Basin 	<ul style="list-style-type: none"> • Rapid CRVA to inform the NAPA • NAPA • DNA for CDM • CDM (Lusaka sustainable energy) • CDM (3 Rocks) • Climate Change Facilitation Unit • CC Response Strategy • CC Information Needs Assessments • Economics of climate change in Zambia. 	<ul style="list-style-type: none"> • ICCS • Zambia SPCR (PPCR) • 2nd National Communication • Mainstreaming CC into the SNDP • CC Technology Needs Assessment and Action Plan • LECB project - Nationally Appropriate Mitigation Actions • National Meteorological 	<ul style="list-style-type: none"> • NPCC • Nationally Determined Contribution • CC Coordination Framework • Climate Change Department • CC mainstreaming into 7NDP • REDD+ Strategy • Investment Plan for reducing emissions from deforestation • 3rd National Communication • NDC Partnership

	<ul style="list-style-type: none"> • GHG Inventory (2006 Guidelines) • IUCN CC and Development report • ILUA Phase I 	<p>Policy, 2014</p> <ul style="list-style-type: none"> • NDA for GCF • 1st NAPA project – agriculture • 2nd NAPA Project - Climate Information and Early warning • 3rd NAPA Project - Promoting climate resilient community based regeneration indigenous forests • Enhanced capacity on LEDS (USAID) • ILUA Phase II • GEF 5 project in the Greater KNP and Lunga NP 	<ul style="list-style-type: none"> • Cabinet approval on CC Bill • LEDS Modelling Project • Zambia Integrated Forest Landscape Programme • NDE CTCN • Additional Finance (AF) for the PPCR • TRALARD Project • NDC CAEP Support • NDC Support Program • Innovative Technologies to Improve Climate Resilience in the Zambian Agricultural Sector • SCRALA (GCF) • NAP Readiness Proposal (GCF) • EbA Project Proposal (GEF) • Renewable energy financing framework (GCF) • Mainstreaming climate resilience in 11 DDPs under SCRiKA
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These policies, strategies, programmes and projects are aligned with the Revised Sixth National Development Plan (RSDNP) and the Vision 2030 which promotes “A prosperous middle-income country by 2030”, both of which support development of a low carbon and climate-resilient development pathway. In addition, Government ratified the Kyoto Protocol in 2006 among other things to facilitate implementation of the Clean Development Mechanism. The country is also in the process of developing its National Adaptation Plan (NAP) for long term adaptation planning and mainstreaming of climate change into national development planning process. The development of the Seventh National Development Plan (SeNDP, 2017-2021) is also underway which will take into account climate change issues

2.2.1 NDC Implementation Progress

Following the 21st Conference of the Parties (COP21) to the United Nations Framework Convention on Climate Change (UNFCCC) in Paris in December 2015, Zambia with other

nations from around the world made a collective commitment to limit the increase in global temperatures to less than 2 degrees Celsius and address matters of climate change adaptation. The countries set out their own contributions in the form of targets, policies and actions, framed as Intended Nationally Determined Contributions (INDCs) submitted prior to COP21. With the ratification of the Paris Agreement, these INDCs have become Nationally Determined Contributions (NDCs).

Zambia's NDC includes both adaptation and mitigation actions with a goal of achieving its contribution by 2030. The NDC is Aligned to Sustainable Development Goals (SDGs) and the Seventh National Development Plan. Further the NDC is aligned to the national and sectorial policies, programmes, plans and strategies. The successful implementation of Zambia's NDC will result in an estimated total emission reduction of 38,000GgCO₂eq which translates to 47% (internationally supported efforts). This emission reduction is conditional and subject to the availability of international support in form of finance, technology and capacity building. The total budget for implementing both components is estimated at US\$ 50 billion by the year 2030. USD 35 billion of this is expected to come from external sources while \$15 billion will be mobilized from domestic sources.

An assessment undertaken as part of the INDC preparation for the mitigation component revealed that mitigation policies/actions/programs converge into three programmes, namely; Sustainable Forest Management, Sustainable Agriculture and Renewable Energy and Energy Efficiency.

Similarly, adaptation measures identified based on vulnerability assessment of seven key economic sectors (agriculture, water, forestry, energy, wildlife, infrastructure and health) comprise three goals/programmes that have strong synergies with mitigation. These are: Adaptation of strategic productive systems (agriculture, forests, wildlife and water); Adaptation of strategic infrastructure and health systems; and enhanced capacity building, research, technology transfer and finance.

2.2.2 Mitigation

Contribution

Zambia intends to reduce its CO₂eq emissions by implementing three (3) programmes driven by the country's Climate Response Strategy and supported by national development policies including energy, forestry, agriculture, water, town and country planning, sanitation, and transport.

2.2.3 Adaptation

Adaptation measures

As a minimal contributor to global GHG emissions, Zambia places significant importance and priority on adaptation to the effects of climate change in order to enhance the resilience of its population, ecosystems, infrastructure, productive and health systems. The key socio-economic sectors identified as most vulnerable to climate change impacts include: agriculture, water, forestry, energy, wildlife, infrastructure and health. All the adaptation actions have strong synergies with mitigation actions.

2.2.4 Approach for Adaptation Measures

These have been identified in the NAPA (2007) and subsequent assessments as the most vulnerable sectors to impacts of climate change especially droughts and floods identify Agriculture; Water; Forestry; Energy; Wildlife; Infrastructure; and Health as sectors where adaptation measures are applicable.

2.2.5 Implementation Roadmap for the NDC

Through programmes such as the UNDP Low Emission Capacity Building (LECB) Programme, several systems and capabilities have been established to facilitate the implementation of Zambia's NDC. These include:

- Establishing a sustainable National GHG Inventory Management System with formalized institutional arrangements to serve as the cornerstone of Zambia's long-term GHG emission reporting structure;
- Building technical capacity and awareness on GHG inventories and mitigation/adaptation projects;
- Developing five mitigation actions (NAMAs) with MRV Systems, derived from 30 project ideas from inputs from all 10 provinces;
- Introducing conservation farming and REDD pilot projects;
- Strengthening adaptive capacity for rural areas and the agriculture sector, e.g. through improved access to weather-related data;
- Establishing national focal points for Climate Technology Centre and Network (CTCN) and the Green Climate Fund (GCF).
- The Climate Change and Gender Action Plan (ccGAP), which was launched in 2018, will build on lessons from the Pilot Programme on Climate Resilience supported by World Bank and AfDB.
- The 7th National Development Plan, close linkages were made between development and climate change (including Zambia's NDC and NAMA target activities), which positively reflects greater climate change mainstreaming.

2.2.6 Time frame for NDC implementation

Zambia’s NDC will be implemented within a time frame of 11years (2019-2030). This will be done in three phases as shown in Table 2.3.

Table 2.3: Implementation Phases of the NDC.

Phase I - Pre 2020	Phase II - Compliance Phase	Phase III - True-up phase Period
<ul style="list-style-type: none"> • Short Term: 2019-2020 • Preparatory and Readiness Phase. • Key Enabling Elements- Legal Framework; Institutional. Arrangements; Capacity/Technical assistance needs. 	<ul style="list-style-type: none"> • Medium Term: 2019-2025. • Implementation phase of priority actions. 	<ul style="list-style-type: none"> • Long Term: 2026-2030. • Evaluation of the impact of the investments made during the compliance against -benefits.

2.2.7 National Adaptation Plan (NAP)

In 2014, Zambia initiated the NAP process and undertook orientation activities and stakeholder dialogue. The dialogue was aimed at enhancing stakeholders’ understanding of the NAP process based on the UNFCCC’s LEG Technical Guidelines for National Adaptation Plan processes. The orientation targeted planning personnel in line ministries of government. In December 2018, a NAP readiness proposal was submitted to the GCF requesting for support to enable Zambia prepare its long-term adaptation plan. The overarching NAP framework will enable long term strategic planning and coordination of adaptation in line with National Development Planning processes and foster coherence and synergies with sectoral NAP planning processes.

Some sectors such as health and agriculture are way ahead and have developed their sector related NAP which will feed into the country NAP. The Health NAP was supported by the UNDP under the UN Joint Programme on climate change and disaster risk reduction. In the agriculture sector, the Food and Agriculture Organization is supporting the integration of agriculture in the NAP process through the NAP-Agriculture programme. The NAP-Ag focuses on strengthening individual and institutional capacities of the agricultural sectors on NAPs. There is also a plan to initiate NAPs for water and energy, to ensure NAPs for key sectors inform the national process. Ensuring coordination across sectoral level NAPs with the national one will be essential.

2.3 Climate Change Learning Context

According to UNSECO, Climate Change Education (CCE) is a tool for developing responses and helping people address climate change. It helps learners understand the causes and consequences and prepare for the impacts of climate change. The UN-Climate Change: Learn, fosters

awareness, capacity building and innovation through climate change learning. It aims to help communities and individuals reduce greenhouse gas emissions and effectively adapt to the changing climate. A number of climate change learning related needs/interventions have been identified in Zambia. These are listed in Table 2.4:

Table 2.4 Climate Change Learning needs.

Identified need/intervention	Source
Increased sensitisation and awareness-raising effort for effective climate change adaptation and mitigation strategies.	National Climate Change Communication and Advocacy Strategy (NCCCAS, 2016)
Provision of climate change information, knowledge and long-term data to researchers, planners, policy makers and the general public on climate change impacts, adaptations and mitigation measures.	The National Climate Change Response Strategy (NCCRS, 2010)
Need for climate change education in formal and non-formal settings.	
Promoting communication and dissemination of climate change information to enhance awareness and understanding of its impacts.	National Climate Change Policy
Development of sharing mechanisms, to promote dissemination of research findings and promote the involvement of local authorities and traditional leaders in climate change education, public awareness and inclusion of indigenous knowledge.	
Increasing awareness, knowledge and appreciation of climate change to support understanding and attitude change among the public and target stakeholders across the country.	NCCAS (2016)
Enhancing the capacity of the media, scientists, researchers, government departments and other organisations involved in climate change to effectively engage and disseminate climate change information.	
Improving adaptation capacity of farmers through strengthening technical capacity and institutions by providing training on adaptation option and developing training materials on the needs identified.	NAP-Agriculture
Promoting advocacy and knowledge sharing through global outreach, and write-up of annual reports.	
Researching education, training and public awareness, capacity building, information and networking, and related financial, technical and capacity needs.	Study on Information Needs Assessment and Identification Gaps on Climate Change in Zambia (2010).
Mainstreaming of climate change in the national development plans - in the preparation of the Sixth National Development Plan (SNDP), the Zambia government mainstreamed climate change in transport infrastructure including housing, energy, water and sanitation, health, education, agriculture, livestock and fisheries,	

mining, tourism, manufacturing, information and communication, science, technology and innovation, natural resources, local government and decentralization, and gender.	
Integrating of Climate Change in the secondary and primary school curriculum.	

2.3.1 Climate change education related activities

The Zambian Government and cooperating partners have developed and implemented climate change mitigation, resilience and adaptation programmes with regards to climate change education and training, awareness-raising, research, information dissemination, and capacity building in the past. Below are some examples:

- The Study on Information Needs Assessment and Identification Gaps on Climate Change in Zambia (2010) indicates that teachers have been trained in environmental education under the Zambia Education Programme (ZEP) implemented by the World Wide Fund (WWF) 1995 to 2002. School based environment clubs developed climate change information pages.
- The NCCAS highlights that support to school based environmental clubs received materials on climate change from NGOs and CSOs for dissemination.
- Some NGOs have provided fellowships and competitions, supporting training and youth conferences.
- The government has been organizing climate change information sharing through documents, posters, and leaflets, discussion programmes on both radio and TV.
- PANOS institute of southern Africa has been carrying out public awareness and capacity building on climate change through the media. It is also involved in the publication of materials on climate change and working on policy briefs to increase awareness.
- In 1991, the international scientific workshop on climate change was held in Lusaka and organised by the Energy and Environment Research Group (EERG) based in the Physics Department at UNZA.
- NGOs such as Citizens for a Better environment through community education and community mobilization have also been involved in awareness-raising.
- Private and public print and electronic media often cover climate change awareness activities.
- The Ministry of Tourism, Environment and Natural Resources produced an awareness DVD-VIDEO on Climate Change- the Zambian Story, to illustrate the effects of climate change covering both droughts and floods on livelihoods and wildlife.
- The University of Zambia (UNZA) through the Physics Department has done research on basic scientific aspects of climate change and a new concept about emissions permit. The department also carried out research on Climate modelling and downscaling.

- The National Adaptation Plan for the agriculture sector provides capacity and adaptation needs for agriculture.
- Civil society and government officers participate in the UNFCCC-sponsored climate change negotiations and awareness creation and lobbying to parliament and government on policy issues.
- The Zambia Meteorological Department (ZMD) provides weather monitoring & forecasting which includes climate change data collection and dissemination. Under the PPCR, ZMD has been capacitated with equipment for digitizing rainfall stations aimed at assisting development of hazards maps, and historical maps of identified climate indices, and downscaling of forecasts (1-6 days plus seasonal forecasts).
- The NPCC provides a platform for collaboration among institutions and strengthening links between programmes. This is aimed to enhance information exchange across government ministries and departments.
- The National Archives provides information on climate change.
- The NCCAS, highlights that the mass media is vital in spreading climate change information to impact primarily on the first (basic) levels of the behaviour change stages, awareness creation, creating interest and education - to large and varied target audiences and in a cost-effective way.

2.3.2 Climate change learning: gaps and challenges

The National Climate Change Response Strategy (NCCRS, 2010) notes that the major concern for Zambia is the lack of adequate climate change information, knowledge and long-term period data to researchers, planners, policy makers and the general public. This is said to have led to the limited preparedness of individuals, households and communities to respond to climate change effects. The strategy further observes that there is inadequate communication infrastructure to support exchange of climate change information. It notes that despite available climate data being deposited at the National Archives of Zambia, the rate of published publications is still low. Other means of accessing information (such as print materials) are predominantly urban-based and in English language. This situation is said to be compounded by the high cost of access to ICTs products and services for the majority of the population, which has compromised the smooth flow of information and ideas on climate change. Despite holding immense potential to spearhead the dissemination of climate change information, national information service providers (such as NAIS and ZANIS) are incapacitated and unable to play their due roles.

The Study on Information Needs Assessment and Identification Gaps on Climate Change in Zambia (2010) notes the lack of awareness, education and training to deal with the negative impacts of climate change for Zambia to understand its local climate better and be able to predict local climate change. For example, lack of access to accurate and reliable weather information for farmers constrains the local community's ability to mitigate climate change and enable them to make appropriate adaptation decisions. The report notes that the information required by the

local community includes the causes of climate change and how to respond to it, the distinction between mitigation and adaptation to climate change, the existing government programmes in relation to climate change and specific climate change issues and impacts, information targeting special interest groups, climate change policies and protocols (including government's positions on them) and indigenous knowledge and its role in climate change adaptation and mitigation. It further observes that there is also inconsistent research which results in having outdated data.

The journalists' perspective on climate change stories is low in both print and electronic media. The potentially powerful role of community media to increase outreach remains untapped due to lack of resources for in-depth reporting of development issues. This is as a result of lack of relevant content, dependence on volunteer producers and financial constraints. NCCRS (2010) notes that there is limited specialised training among the media personnel on climate related issues.

The Forestry Department notes that integrating climate change issues into the national forest programmes and policy frameworks is a big challenge. For example, women participation in forest resource management is limited by land tenure arrangements, cultural norms / stereotypes, information, training and education. There is need for capacity building, especially for the poor and vulnerable to effects of climate change.

From the formal education perspective, the challenge with regards to climate change training is that most tertiary institutions in Zambia are confined within their traditional boundaries of teaching and learning. Consequently, most education and research remain compartmentalized and it is difficult to make a significant headway in a formal manner for an interdisciplinary subject like the climate change. The number of institutions with expertise and offering analytical skills on climate change are limited to one or two institutions in Zambia.

Although, education for sustainable development, environmental education and climate change issues have been recognised as cross cutting issues in the National School Curriculum Framework, schools lack teaching and learning materials. The teachers might not have the necessary skills, knowledge and content to handle climate change issues in the classroom. There is need to identify the capacities and capabilities needed to comprehensively integrate climate change issues across the curriculum.

SECTION 3

EXISTING PRIORITIES AND INITIATIVES

3.1 Policies and Strategies

As already stated in Section 2 of this report, the Zambian government has developed the *National Policy on Climate Change* (NPCC) and other strategies to provide a framework for coordinated response to climate change issues. The NPCC gives guidance on how the Zambian economy can grow in a sustainable manner and thereby fostering a smooth implementation of the Revised 7th National Development Plan (7NDP) and the achievement of the Vision 2030. The NPCC enables Zambia to re-align its climate-sensitive sectors of the economy and its society in order to meet its development goals through adaptation and mitigation interventions.

The NPCC overall objective is to provide a framework for coordinating climate change programmes in order to ensure climate resilient and low carbon development pathways for sustainable development towards the attainment of Zambia's Vision 2030. Other climate change relevant policies and strategies which the country has put in place include:

- National Adaptation Plan of Action (NAPA) 2007,
- Nationally Determined Contribution (INDC) 2015,
- National Climate Change Response Strategy 2010, and

The following policies and sectoral strategies contribute to environment, climate change adaptation and mitigation:

- National Policy on Environment (NPE, 2007);
- National Forestry Policy of 2014; 10
- National Energy Policy of 2008;
- National Agriculture Policy of 2014
- Transport Policy of 2002;
- National Strategy for Reducing Emissions from Deforestation and Forest Degradation of 2015);
- Second National Biodiversity Strategy and Action Plan (NBSAP2);
- Technology Needs Assessment of 2013);
- Nationally Appropriate Mitigation Actions of, 2014);
- Second National Communication of 2015).
- Revised National School Curriculum of 2013

- Higher Education Policy 2019
- General Education Policy 2019 (draft).

Although the policies are in place, the challenge remains to integrate and mainstream climate change into other key national development programmes.

3.2 Policy Measures

In order to overcome the challenges of implementing the developed policies, the Government developed a number of policy measures as indicated in the National Policy for Climate Change. These are shown in Table 3.1.

Table 3.1: Policy Measures for Implementation of NPCC Objectives.

Policy Measure	Objective	Measure
Adaptation and Disaster Risk Reduction	To promote and strengthen the implementation of adaptation and disaster risk reduction measures to reduce vulnerability to climate variability and change.	<ul style="list-style-type: none"> • Strengthen the mechanism for identifying risks and hazards in order to facilitate planning and early warning; • Strengthen surveillance and control of climate change related pests and diseases; • Strengthen the resilience of infrastructure, ecosystems and promote innovation, knowledge and education; • Promote Community-based risk management activities and use of social safety nets for the most vulnerable; • Promote use of financial instruments such as weather-indexed insurance, carbon instruments and catastrophic bonds to enhance resilience and cover climate related risks; • Promote the adoption of appropriate Climate Smart Agricultural (CSA) technologies for different agro-ecological zones; • Promote landscape-based livelihood diversification; • Promote monitoring and management of wildlife habitats; • Establish and/or strengthen mechanisms for monitoring networks and information systems for improved utilization of climatic data and information; • Promote climate change related public health plans and interventions; • Promote the communities' ability to develop physical and social infrastructure that are resilient to the adverse effects of climate change; and • Promote the protection of water catchment areas, including the development of environmentally friendly infrastructure for bulk water transfer (water ways), storage, management and utilization of water resources.
Mitigation and Low-Emission Development-Related Actions	To promote investments in climate resilient and low carbon development pathways in order to generate co-benefits and provide incentives for addressing climate change more effectively.	<ul style="list-style-type: none"> • Promote sustainable land use planning to protect key ecosystems and related services such as carbon sinks; • Promote landscape-based livelihood diversification; • Promote the development and implementation of Nationally Appropriate Mitigation Action (NAMAs) in the sectors;

		<ul style="list-style-type: none"> • Ensure that investments adhere to sustainable development principles and are in line with low-carbon development principles; • Promote scaling up of alternative energy sources, energy efficiency and conservation; • Reduce forest degradation and loss of forest ecosystems; and • Strengthen the fire management and soil conservation.
Measures Related to Crosscutting Issues (Capacity Building)	To strengthen the institutional and human resource capacity in order to effectively and efficiently address all aspects of climate change at, national, provincial, district and local levels.	<ul style="list-style-type: none"> • Promote stakeholders' participation and partnerships that integrate climate change in natural resources management at all levels; • Enhance the capacity of rural economies to diversify, by promoting alternative income generating activities that are climate resilient; • Promote capacity building in climate change response actions; • Facilitate implementation of capacity development programmes in modeling and systematic observation; • Enhance the capacity of institutions to mobilize and utilize external and domestic climate financial resources; • Enhance the monitoring and review of the effectiveness of capacity-building programmes; • Promote consideration of gender aspects and the role and needs of youth and persons with disabilities in capacity-building activities; • Promote public education and awareness to enhance the capacity to address climate change; • Build capacity in developing innovations and technologies and adoption and utilization of external technologies; and • Strengthen the capacity of local technological innovation centers to help strengthen institutional technology generation and transfer through a learning-by-doing approach.
Research and Development	To foster research and development in order to improve understanding and decision making in responding to climate change.	<ul style="list-style-type: none"> • Promote research and development (R&D) to address climate change/ variability in all sectors; • Promote the use of prediction models and technologies to determine regional vulnerability of the sectors to climate change; • Support higher learning and research institutions on climate related applied research; and

		<ul style="list-style-type: none"> • Facilitate research, development and demonstration of new climate-friendly technologies for mitigation and adaptation.
Education and Public Awareness	To promote communication and dissemination of climate change information to enhance awareness and understanding of its opportunities and impacts.	<ul style="list-style-type: none"> • Facilitate climate change advocacy, communication and awareness; • Strengthen climate change education, training and public awareness at all levels; • Develop and implement an information generation, sharing and exchange mechanism for climate change; • Promote involvement of local authorities and traditional leaders in climate change education, public awareness including the use of indigenous knowledge; and • Promote dissemination of research findings at all levels.
Gender	To engender climate change programmes and activities in order to enhance gender equality and equity.	<ul style="list-style-type: none"> • Promote gender differentiation and implementation of gender- specific measures on climate change; • Improve the participation of women, youth and children in climate change programmes; • Promote gender equity in access to climate finances.
Technology Development and Transfer	To develop and promote appropriate technologies and build national capacity to benefit from climate change technological transfer.	<ul style="list-style-type: none"> • Facilitate the development, deployment, diffusion, transfer, and promotion of access to affordable environmentally sound technologies; • Promote identification and utilization of available climate-friendly technologies for mitigation and adaptation that meet low-carbon and climate-resilient development needs; • Promote use of indigenous knowledge and local innovation on climate change; • Encourage protection of local innovation and intellectual property rights; • Facilitate establishment and strengthening of climate technology centers/networks; and • Provide incentives for development and transfer of appropriate climate-related technologies.
Promotion of Green Investments	To promote investments in climate resilient and low carbon development pathways in order to generate co-benefits and provide incentives for addressing climate change more effectively.	<ul style="list-style-type: none"> • Promote investments in renewable energy resource development and increase the proportion of renewable energy in the total energy mix; • Provide incentives for low emission technologies; • Promote investments in non-motorized modes of transport (NMT); and • Promote environmentally friendly investments in all relevant sectors.

Mainstreaming of climate change	To promote mainstreaming of climate change into policies, plans and strategies at all levels in order to account for Climate Change risks and opportunities in decision making and implementation.	<ul style="list-style-type: none"> • Strengthen effective mainstreaming of climate change, response and sustainable recovery from climate related disasters; • Promote Strategic Environmental Assessments (SEAs) as a tool for integration of low emission principles; • Promote mainstreaming of gender into all climate change programmes; • Facilitate mainstreaming of climate change into school curriculum; • Develop and implement codes and standards to promote adaptation and mitigation in infrastructure development; and • Promote integration of climate change considerations by Local Authorities.
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3.3 National priority areas for climate change

According to the NDC the national priority areas for climate change in Zambia include Agriculture, Water, Forestry, Energy, Wildlife, infrastructure and health. In developing the national climate change learning strategy, the following priorities have been identified as the focal sectors. The identification is based on the NDC priority areas:

3.3.1 Agriculture Sector

Agriculture sector, which employs 67% of the labour force, remains the main source of income and employment particularly for both rural women and men. The sector also contributes between 16 to 20% of the country's national GDP and provides livelihood for more than 50% of the population. This sector, being highly dependent on rainfall, is very sensitive to climate change. The resultant adverse impacts on crops, livestock and fisheries lead to reduction of agricultural productivity thereby contributing to food insecurity.

3.3.2 Forestry Sector

Forests cover approximately 66% of the land in Zambia, which translates, into approximately 49.97 million hectares of which gazetted forest reserves cover an estimated 9.6%. Forests play an important role in promoting the absorption of carbon from the atmosphere and providing important services such as watershed protection. Most of the water resources originate in forested watersheds, which make forestry very important in regulating water quality and quantity

3.3.3 Energy Sector

The largest source of energy in Zambia is biomass, with 75% of the country's energy supply being from charcoal and firewood. Zambia also has abundant hydroelectric generation potential with 99.9% of electricity produced from hydrological sources. Climate change will, unfortunately, have significant impacts as droughts and rising temperatures lead to gradual drying up of biomass and result in a reduction in the availability of fuel wood. Alterations in the hydrology of the country will result in worsening droughts and more dangerous flooding, thus raising safety concerns for dams. The economic impacts of climate change on hydropower generation will be felt in both the cost of power cuts and wasted investments in dams that will have inadequate water to generate electricity.

3.3.4 Education Sector

In addition to the three sectors above, education can bring about a fundamental shift in how we think, act, and discharge our responsibilities toward one another and the planet. It is seen as a major factor in fighting poverty and hunger. It also tackles global phenomenon and challenges such as climate change. The goal of the education sector in Zambia is to increase equitable access to quality education and skills training to enhance human capacity for sustainable national development. Educators, curriculum developers and education leaders have a role to play in integrating climate change in the pedagogical processes of teaching and learning in formal and non-formal settings. Education in the broader sense has the potential to help raise awareness on the threats and risks of climate change. Education can also equip learners with skills to mitigate or adapt to unforeseen climatic situations. Thus, both the general and higher education will have a big role to play in the development and implementation of Climate Change Learning Strategy.

SECTION 4

LEGAL AND INSTITUTIONAL FRAMEWORKS

4.1 Legal Framework

The Zambian government has put in place a comprehensive legal framework for an integrated approach to climate change. The sector ministries regularly review their relevant policies and legislation, in order to ensure that they are in line with the objectives of the National Policy on Climate Change and other initiatives meant to tackle the climate change. The country is considering formulating a specific policy on climate change. Table 4.1 highlights the Acts and corresponding purposes.

Table 4.1 Climate change related Acts

Enabling Act	Purpose	How it Addresses climate change
Environmental Management Act No. 12 of 2011	The Act provides for the management of environment and natural resources. It establishes Zambia Environmental Management Agency	Promotes public awareness, information sharing and education on climate change impacts and effects. Control and manages emissions from the industry.
Forest Act No. 4 of 2015	The Act provides for the conservation and protection of forests and trees.	Promotes community managing of forests and forest products. Educates communities on the importance of forestry in the wake of climate change.
Zambia Wildlife Act No. 15 of 2015	The Act is responsible for wildlife management and conservation.	Promotes sustainable managing and harvesting of wildlife.
Lands Act Cap 184	The Act is responsible for the management and administration of land in Zambia	Promotes sustainable land use management.
Agriculture Lands Act Cap 187	The Act provides for sustainable agricultural practices, development, investment and management.	Promote Climate Smart Agriculture technologies such as crop diversification Promotes sustainable agriculture practices and climate change adaptation conservation agriculture up-scaling Promoting sustainable Irrigation strategies Improved agricultural practices in response to changes in climate
Agriculture (Fertilizer and Feed) Act No. 13 of 1994, Cap 226	The Act provides for the regulation and control of manufacture, processing, importation and sale of agriculture fertilizers.	Promote sustainable increase in agricultural productivity of major crops with comparative advantage
Energy Regulations Act No. 23 of 2003	The Act among other issues regulates energy use and efficiency.	Promoting scaling up of alternative energy sources, energy efficiency and conservation. Such as solar, wind and geothermal. Seeks to provide electricity supply to rural to enable more people access it. Anticipated to reduce demand for wood energy. Promoting the upgrade of petroleum by blending of oil and fuel to reducing carbon emissions.
Mines and Minerals Act 11 of 2015	The Act provides for mineral and mines development.	provide for safety, health and environmental protection in mining operation.

Urban and Regional Planning Act No. 3 of 2015	The Act provides for planning for all land in Zambia.	Construction of climate resilience infrastructure such as roads and buildings.
Road Traffic Act No. 11 of 2002	The Act provides for road safety and transport management.	Aimed at reducing GHG emissions from vehicles and increasing government revenues.
Water Resources Management Act No. 21 of 2011	The Act provides for the regulation and management of water resources.	Promotes: integrated water resources management. supports delineation of flood risk zones. development of catchment management plans. strengthening of water users' associations. construction of boreholes and dams.
Zambia Development Agency Act No. 11 of 2006	The Act provides for the trade, investment and industrial development in Zambia.	Promote climate change resilience trade and investment
National Heritage Conservation Commission Act, Cap 173	The Act provides for heritage conservation and management.	Promotes sustainable conservation and management of national heritage sites.
Fisheries Act No. 22 of 2011	The Act provides for sustainable fisheries and aqua- cultural development and management.	Promotes aqua-cultural development and management Community fish conservation education
Disaster Management Act No. 13 of 2010	The Act provides for Disaster preparedness and response.	Has made a shift from focusing only on disaster management to disaster risk reduction, climate change and decentralization. Promotes sustainable development among vulnerable communities and improve their resilience.
Public Health Act No. 22 of 1995	The Act provides provision with respect to matters affecting public health in Zambia including prevention and suppression of infectious diseases.	Improving the health status of the people and reducing mortality rates resulting from climate sensitive diseases such as malaria. Epidemic preparedness and response. Ministry of Health has prepared a HNAP strategy

4.2 Institutional Frameworks

The *National Policy on Climate Change* supports and facilitates a coordinated response to climate change issues in the country. It helps with efforts to re-align its climate-sensitive sectors of the

economy and its society in order to meet its development goals through adaptation and mitigation interventions. The NPCC provides for collaborative efforts by all stakeholders. The following are key stakeholders and their main roles.

- i. **Council of Ministers** - The Council of Ministers is the supreme decision-making body for overseeing Climate Change interventions in the country. Its composition is identical to the Council of Ministers responsible for disaster management as provided for in the *Disaster Management Act No. 13 of 2010 with the inclusion of the Minister responsible for Development Planning*. The Council of Ministers is chaired by the Vice President. The Permanent Secretary from the Ministry of National Development Planning is the Secretariat to the Council of Ministers.
- ii. **Steering Committee of Permanent Secretaries** - The Steering Committee is the main advisory body to the Council of Ministers on policy, programme coordination and implementation. It is chaired by the Permanent Secretary in the Ministry of National Development Planning. The composition of the Steering Committee includes, the permanent secretaries from the ministries for: National Development Planning, Housing and Infrastructure Development, Health, Energy, Agriculture, Lands and Natural Resources, Transport and Communications, Mines and Minerals Development, Information and Broadcasting, Works and Supply, Home Affairs, Water Development, Sanitation and Environmental Protection, Gender, and Disaster Management and Mitigation unit in the Vice President's Office. The Permanent Secretary from the Ministry of Land and Natural Resources is the Secretariat to the Steering Committee.
- iii. **Technical Committee** – The Technical Committee comprises representatives from relevant Ministries and other key stakeholders. The Technical Committee is chaired by the Permanent Secretary, Ministry of Lands and Natural Resources.
- iv. **Ministry of Lands, and Natural Resources** - The Ministry Lands and Natural Resources is the lead institution in overseeing the implementation of National Policy on Climate Change and other climate change related programmes and activities. It reports to the Steering Committee of Permanent Secretaries.
- v. **Ministry of National Development Planning** - The Ministry of National Development Planning is responsible for overall coordination and oversight, and mainstreaming of climate change in national development planning processes.
- vi. **Ministry of Finance** - The Ministry of Finance is responsible for resource mobilization in line with its mandate. It is responsible for managing the national budget process, and is the conduit for all international climate-related financial inflows.
- vii. **Office of the Vice President - Disaster Management and Mitigation Unit** – The DMMU is responsible for mobilizing and managing resources for disaster response and rehabilitation. Although charged with responding to all types of disasters, those arising from climate variability make up the bulk of its work.
- viii. **Climate Change and Natural Resources Management Department** - In order to facilitate effective implementation of this policy and other programmes associated with climate change,

a Department of Climate Change was established at the Ministry of Lands and Natural Resources. It became formally fully operational on 1st July 2018. The department acts as a Climate Change Secretariat. For purposes of coordination, overall oversight and mainstreaming of climate change in national development planning processes, this Department works in close collaborate with the Ministry of National Development Planning.

Figure 4.1 presents a diagrammatic summary of the institutional arrangements

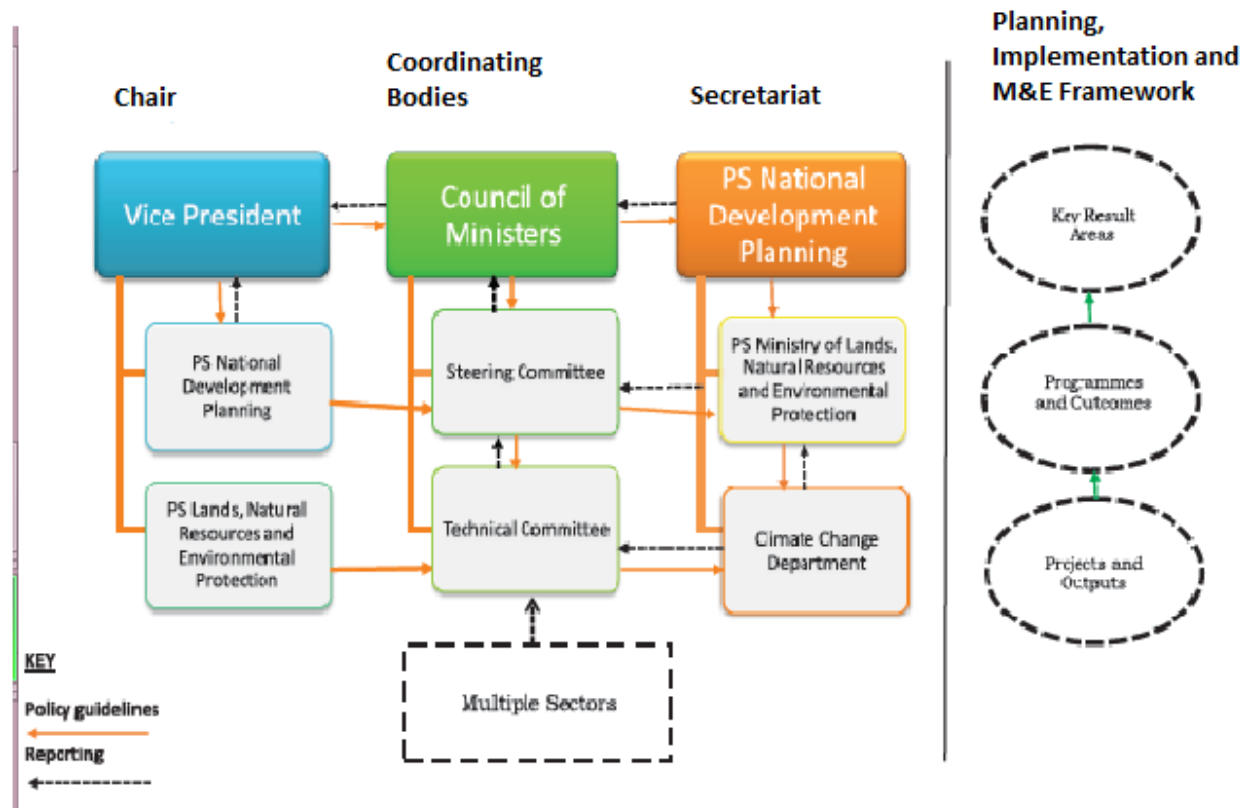


Figure 3.1 Summary of the Institutional arrangement

Source: National Policy on Climate Change (Ministry of National Planning, 2016)

4.2.1 Key Stakeholders for the climate change learning

Table 4.2 provides an indicative list of Stakeholders that will contribute to the development of the *National Climate Change Learning Strategy*.

Table 4.2 Indicative List of Stakeholders

	Stakeholder	Description	Roles
1	Line ministries;	Ministries of; National Development Planning, Ministry of Finance, Housing and Infrastructure Development, Health, Energy, Agriculture, Lands and Natural Resources, Transport and Communications, Mines and Minerals Development, Information and Broadcasting, Works and Supply, Home Affairs, Water Development, Sanitation and Environmental Protection, and Gender.	Providing oversight on climate change policy implementations, Information dissemination through the ministries respective public relations offices.
2	Relevant statutory bodies;	Zambia Environmental Management Agency. Disaster Management and Mitigation unit in the Vice President’s Office, Curriculum Development Centre	Information dissemination, education and public awareness.
3	Education providers	Ministry of Higher Education and Ministry of General Education. TEVETA?	Integrate climate change information in training and curricula.
4	Local authorities	Municipalities, district councils, cities councils etc.	Technical coordination of climate change programmes and projects as well as localization of climate change.
5	Traditional leaders	Ministry of Chiefs and Traditional Affairs, Ministry of National Guidance and Religious Affairs, House of Chiefs etc.	Information dissemination particularly biased towards indigenous knowledge systems, culture norms and tradition.
6	Civil Society Organizations (CSO)	Zambia Climate Change Network members, climate change interest groups and non-governmental organisations.	Dissemination of climate change information and advocacy.
7	Academia (Higher Education Institutions)	Public and private universities, colleges of education, teacher education programmes etc.	Integrate climate change information in training and curricula.
8	Faith Based Organizations	Church mother bodies, churches etc.	Dissemination of climate change information.
9	Media	Public and private media houses.	Dissemination of climate change information and Climate Change Learning Programmes.
10	Cooperating partners (CP)	UNDP, World Bank, International and local development organisations, cooperating partners.	Technical backstopping, financing etc.

11	The private sector;	Corporate organisations, business houses.	Financial support through cooperative social responsibilities.
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SECTION 5

SUMMARY: CLIMATE CHANGE LEARNING

5.1 Global initiatives

With an increasing awareness of environmental problems and effects of climate change, the local and international communities have raised concerns. Climate change learning has recently received increasing international attention, in particular under the UN Framework Convention on Climate Change (UNFCCC). Besides the Convention, a variety of initiatives in the areas of climate change education and training, sustainable development, disaster risk reduction and aid effectiveness exist that can provide useful input for the development and implementation of a National Climate Change Learning Strategy.

UNFCCC Article 6 and the Doha Work Programme

Article 6 of the UNFCCC on Education, Training and Public Awareness calls on governments to develop and implement education and training programmes, including the strengthening of national institutions, training of scientific, technical and managerial personnel, as well as implementing public awareness programmes on climate change and its effects.

Durban Forum on Capacity Building

At the UN Climate Change Conference in Durban, December 2011, Parties decided to set up the Durban Forum on Capacity Building, an annual one-day event to facilitate the monitoring and review of the effectiveness of capacity-building. It provides an opportunity for Parties and other stakeholders to share ideas lessons learned and good practices on the implementation of capacity building activities in developing countries.

Other initiatives that embraces climate change education include:

- The Rio Earth Summit (also known as the United Nations Conference on Environment and Development – UNCED), held in 1992 in Rio de Janeiro in Brazil pronounced a global plan of action for sustainable development, including the UNFCCC, the UNCBD and the UNCCD collectively called the Rio Conventions. The Rio conference gave credence to the role of education in pursuing development that respects and nurtures the natural environment. The summit focused on the process of orienting and re-orienting education towards values and attitudes of respect for the environment and envisaged ways and means of doing so.
- The World Summit on Sustainable Development (WSSD) held in Johannesburg, South Africa, in 2002, was a follow up to the 1992 Earth Summit. The WSSD re-affirmed the role of education in helping to eradicate poverty through sustainable development. The Johannesburg summit broaden the vision of Education for Sustainable Development

(ESD) to encompass social justice and the fight against poverty as key to principles of development that is sustainable. Besides re-affirming the educational objectives of the Millennium Development Goals and the Education for All Dakar Framework for Action, the summit proposed the Decade of Education for Sustainable Development. In 2002, the United Nations General Assembly proclaimed the United Nations Decade of Education for Sustainable Development (2005–2014), underscoring the indispensable role of education in achieving sustainable development.

The universal, transformational and inclusive Sustainable Development Goals (SDGs) describe major development challenges for humanity. The aim of the 17 SDGs (see Figure 5.1) is to secure a sustainable, peaceful, prosperous and equitable life on earth for everyone now and in the future. The goals focus on global challenges that are crucial for the survival of humanity. In addition to addressing environmental and economic development issues facing humanity, the SDGs address a range of social needs including education, health, social protection and job opportunities. The SDGs address key systemic barriers to sustainable development such as inequality, gender, unsustainable consumption patterns, weak institutional capacity, climate change, and environmental degradation.

Figure 5.1: The Sustainable Development Goals in Agenda 2030.



Central to these SDGs is SDG 4 that serves as a sustainable development goal in its own right. At the same time SDG 4 serves as the enabler to attain the other sixteen goals (including SDG 13 - Climate Action). SDG4 is oriented towards the achievement of educational quality within a lifelong learning framework. Emphasis is placed on the relationship between ESD and educational quality and relevance. Specifically, target 4.7 of SDG 4 requires all governments to:

By 2030, ensure that all learners acquire the knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture’s contribution to sustainable development.

The United Nations Framework Convention on Climate Change (Article 6) and the Kyoto Protocol (Article 10) both encourage governments to educate, empower and engage all stakeholders and major groups on climate change policies. Facilitating access to information on climate change is critical to winning public support for climate related policies.

According to a UNICEF publication *Climate Change and Environmental Education* (https://www.unicef.org/publications/files/CFS_Climate_E_web.pdf), there is currently no strong global institutional framework to address children's unique vulnerabilities to climate change. National Adaptation Programmes of Action and other plans, for example, rarely address the specific needs, knowledge and skills that educated children can offer in mitigating and adapting to climate change and other disaster risks.

By incorporating key concepts such as human rights, child rights, poverty reduction, sustainable livelihoods, disaster risk reduction, climate change, gender equality, corporate social responsibility and protection of indigenous peoples (and indigenous knowledge), ESD teaches children to think critically about sustainability and their society.

UNICEF (*Ibid* p. 4) proclaims "Reorienting the existing curriculum of child-friendly schools towards ESD is the next innovative and relevant step towards enhanced quality education. Preparing for a changing climate through quality education"

5.2 Importance of climate change learning

In Zambia, the importance of learning in tackling environmental issues and crisis has been identified in a number of plans and documents such as the *National Environmental Action Plan* (NEAP) of 1994. The NEAP recommends, among others, that:

- Formal education should integrate traditional and modern knowledge systems and values in the education systems. There is need for indigenous knowledge to be passed on to the young generations as this is a true reflection of humans' interaction with the environment.
- During primary education, children should be exposed to the knowledge about the environment ... It is necessary at this level that concern is developed among young people about their environment as well as creating a sense of responsibility of looking after it.
- Informal education should aim to make Zambians aware of their own environment, acquire basic knowledge about their environment and its associated problems and skills for solving environmental problems.

5.3 Climate Change in Zambian School Curriculum Framework

The Ministry of General Education (MOGE) National School Curriculum Framework of 2013 acknowledges the fact that Zambia has experienced various environmental problems, including deforestation, air and water pollution, land degradation, inadequate sanitation and depletion of fish and wild species. The revision of the national curriculum was informed by, among other plans and strategies, the 1994 *National Environmental Action Plan* (NEAP). The Framework

recognizes Education for Sustainable Development, Environmental Education and Climate Change as some of the key cross cutting issues that must be taught from Early Childhood Education (ECE), primary and secondary schools. In particular, the Curriculum Framework notes that:

“Climate Change is an ecological problem as well as a social problem because all societies are affected in one way or another. For this reason, it is important that the school curriculum provides for this education so that learners become aware of the ecological aspects of the climate crisis and learn how to contribute towards preventing and combating the issue.”

National School Curriculum Framework (MOGE, 2013)

Though climate change issues appear in the Zambian National School Curriculum Framework, the schools lack teaching and learning materials. The teachers may lack the knowledge and skills to handle climate change issues in the classroom. There is need to identify the capacities and capabilities needed to comprehensively integrate climate change issues across the curriculum. Development of a National Climate Change Strategy will need to tackle in all the missing gaps.

5.4 Climate Change Learning in Higher Education Institutions

In order to realign what is taught in teacher training colleges with school curricula, some teacher education programmes in higher education institutions teach climate change as full courses, electives or at post graduate level. For example, the University of Zambia has fully fledged undergraduate and post graduate programmes in environmental education which cover climate change issues. Chalimbana University and some colleges of education offer environmental education or Education for Sustainable Development modules to trainee teachers. What is needed is a comprehensive and holistic approach to integrations of climate change education in teacher education institutions.

Climate Change is also taught in non-educational courses and programmes. For example, Copperbelt University offers climate change as follows: as an elective course at 5th year of the BEng in Environmental Engineering; BSc in sustainable natural resource management and climate change; BSc in plant and environmental sciences; MSc climate change; and MSc in climate change and sustainable development. Apart from the formal curriculum, aspects of climate change are offered in professional development training in key sectors such as; water, agriculture, tourism, livestock and fisheries etc. For example, the Ministry of Agriculture has included climate change in their trainings in their colleges of agriculture in Monze, Mpika and the Natural Resources Development College (NRDC). The plans would be to expand the integration of climate change in the curriculum of farm training institutes.

5.5 Conclusion

This background report on national climate change priorities and relevant capacity development goals and initiatives in Zambia has highlighted information needed for developing the National Climate Change Learning Strategy. The report reveals that Zambia has policies, strategies, legal and institutional frameworks that would support the development of national climate change learning strategy. The national policy on climate change (NPCC) provides heuristic frameworks for the implementation and mainstreaming of climate change into development in an integrated and holistic manner. The NPCC has been the basis for the development of most local and international initiatives on climate change.

The NPCC also provides the country with home grown initiatives targeted at minimising the impact of climate change on national development. The policy provides stakeholders with a clearer framework on how to tackle climate change in Zambia. Efforts have been made to develop programmes and activities that respond to effects of climate change. The Ministry of Lands and Natural Resources will spearhead the implementation of climate change programmes, including the development of the national climate change strategy. The Ministry, working within the institutional framework of climate change will support and facilitate a coordinated approach to climate change learning strategy development.

One of the changes that will be faced in the development of the climate change learning strategy will be lack of information on the concept within the sectors. There is little information on how the different sectors are embracing climate change learning. Most of the initiatives that have been referred in this report are not explicit on the climate change learning focus. A lot will depend on the content of this report and needs analysis for stakeholders to come up with a comprehensive National Climate Change Learning Strategy. Further the process of developing the strategy would draw heavily on experiences of other countries as well as the UN CC: Learn Project. As can be seen from this report, there are many needy areas/sectors that may be included in the strategy. However, for the strategy to be meaningful and effective 3-5 sectors maybe considered as guided by the UN CC: Learn Guidance Note.

5.6 Recommendations

1. The development of the National Climate Change Learning Strategy should be built on contributions from multi-stakeholder and cross-sectoral collaboration, including representatives from a variety of sectors and segment of the society. Of course, it will be practically impossible to implement a strategy that has a huge number of sectors. Lessons from the Global UN CC: Learn and other countries show that fewer than 3 – 5 sectors are ideal. The Inception meeting and subsequent discussions identified (based on NDC priority areas) agriculture, energy, forestry and education as the key focal sectors for the development of the climate change.
2. The Ministry of Higher Education and Ministry of General Education should be actively involved in the deliberations on the National Climate Change Strategy Development. The

two ministries should have at least two representatives in each meeting organised to discuss the development of the National Climate Change Learning Strategy. Also, to be included should be training institutions that deal with aspects of the priority sectors.

3. Stakeholder participation should be extended to teacher education faculties from both private and public universities. Other university representatives should be chosen from disciplines that represent sectors to be chosen as priority areas for the strategy. A representative of teacher education colleges should also be part of the process.
4. Already existing climate change related projects in various sectors should be supported to mainstream learning, as a central theme. It will be ideal to invite some of the project managers to the mid-term review Workshop, especially those from priority sectors.
5. The media is a key stakeholder and need to attend meetings called for the development of the National Climate Change Learning Strategy. The role of the media should not be limited to cover the events, part to be part of the deliberations.

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