REPUBLIC OF ZAMBIA

1.0 Background

This document presents the provisional communication of the updated Nationally Determined Contribution (NDC) for Zambia to the Paris Agreement on climate change. Pursuant to **Decision 1/CP.19**, **1/CP.20**, and **1/CP.21**, requesting countries to enhance their climate ambitions and update their Nationally Determined Contributions from 2020 and every five years thereafter, Zambia submits its updated Nationally Determined Contribution (NDC 3.0) to the Paris Agreement on climate change. This submission is a critical step in Zambia's efforts to address climate change and contribute to the global efforts of limiting global warming to well below 1.5°C above pre-industrial levels.

Zambia's first NDC (NDC 1.0) was submitted on December 9, 2016, with a conditional pledge to reduce Greenhouse Gas (GHG) emissions by 20,000 Gg CO2 eq. by 2030 against a base year of 2010 under the Business As Usual (BAU) scenario with limited international support, or by 38,000 Gg CO2 eq.) with substantial international support[1]. This pledge consisted of both mitigation and adaptation components based on Zambia's national circumstances, including its development priorities and economic growth prospects.

The country submitted its revised NDC 2.0 on July 30, 2021, outlining updated climate action commitments, including targets for reducing greenhouse gas emissions and enhancing climate resilience. While NDC 2.0 maintained the country's overall pledge of reducing GHG emissions by 20, 000 Gg CO2eq. by 2030 against the base year of 2010 under the Business-As-Usual (BAU) scenario with limited international support, or, by 38 000 Gg CO2eq. with substantial international support, it broadened the scope of sectors under mitigation by adding transport, liquid waste, and coal (production, transportation, and consumption). This expansion was based on a thorough review of Zambia's national circumstances and the need to address the growing emissions from these sectors. Further, the submission elaborated the adaptation component of the NDC by developing indicators that will enable the country track progress on building resilience in both the human and physical systems and on adaptation actions. In this NDC 3.0 submission, Zambia enhances its ambition by broadening the scope of sectors to include:

Tourism: Zambia recognizes the importance of tourism in its economy and the need to promote

[1] Limited international support means the domestic resources that the country is able to mobilize including the prevailing international resources (Business as Usual resources) that the country was receiving as of 2015 and estimated at USD $ 15 Billion. 2 Substantial international support means adequate international resources, both bilateral and multilateral support estimated at USD $ 35 Billion.

sustainable tourism infrastructure and practices that reduce GHG emissions.

Industrial Processes and Product Use (IPPU): This sector includes emissions from cement production, which is a significant contributor to Zambia's GHG emissions.

Infrastructure (Green Buildings): Zambia aims to promote green building practices that reduce energy consumption and and subsequently reduce GHG emissions.

Water security: Zambia aims to promote water security for all its citizens through gender-responsive and climate-smart water infrastructure.

With the addition of these four sectors, Zambia has enhanced its ambition through a total of ten (10) sectors comprising: Forestry (sustainable forest management), Agriculture (sustainable agriculture), Energy (renewable energy and energy efficiency), Transport, Coal (production, transportation and consumption), Waste, Infrastructure (Green buildings), Tourism (Eco-Tourism) and Industrial Processes and Products Use (Cement Production) and water security. This is progressively moving the country towards an economy-wide approach in its coverage.

Zambia adopts the indicators from the UAE Framework for Global Climate Resilience and Adaptation as a basis for enhancing its ambition in adaptation (Annex 2). The country has developed complementary indicators on cross-cutting initiatives. These indicators include:

- **Strengthened Institutional Capacity** for Coordinating Climate Change Projects and Programmes
- **Fiscal policies** improved to foster low-carbon and resilient sustainable development
- **Financial stability** and supervisory policy and procedures improved to foster low-carbon and resilient sustainable development

Zambia's updated NDC 3.0 demonstrates its commitment to enhancing its climate ambitions and contributing to the global effort to address climate change. The country's efforts to broaden the scope of sectors under mitigation and adaptation will help reduce greenhouse gas emissions and enhance climate resilience.

1.1 Further information necessary for clarity, transparency and understanding (ICTU) of Zambia's NDC.

Zambia has used the guidance provided in **Decision 4/CMA.1** to provide information to facilitate clarity, transparency and understanding of information included in the provisional NDC 3.0.

2.0 Annex 1

Nationally Determined Contribution (NDC) of Zambia for the timeframe 2015-2030 Updated as of 25th February 2025.
Zambia intends to reduce its greenhouse gas emissions by 25% (at Business As Usual (BAU) level of international support prevailing in 2015) and towards 47% (with substantial international support) by 2030[2].

Information necessary for Clarity, Transparency and Understanding (ICTU) of Zambia's NDC

Para	**Guidance in decision 4/CMA.1**	**ICTU guidance as applicable to Zambia's NDC**
1	***Quantifiable information on the reference point (including, as appropriate, a base year):***	
(a)	**Reference year(s), base year(s), reference period(s) or other starting point(s);**	Base year: 2010
(b)	**Quantifiable information on the reference indicators, their values in the reference year(s), base year(s), reference period(s) or other starting point(s), and, as applicable, in the target year**	The reference indicator has been quantified based on national total greenhouse gas (GHG) emissions with 2010 as the base year. The base year emission level was 120,604 Gg CO2-equivalents.[3]

[2] This ambition is also in line with the Global Stocktake decision FCCC/PA/CMA/2023/16/Add.1

[3] The emission reduction targets of 25% with limited international support and 47% with substantial international support was calculated based on the 1996 IPCC guidelines, however, there has been a recalculation using the 2006 IPCC guidelines in the Third National Communication and the First Biennial Update Report which resulted in a base year emission level of 120,604 Gg CO2 equivalents.

(c)	**For strategies, plans and actions referred to in Article 4, paragraph 6, of the Paris Agreement, or polices and measures as components of nationally determined contributions where paragraph 1(b) above is not applicable, Parties to provide other relevant information**	Zambia prepared Nationally Appropriate Mitigation Actions (NAMAs) on small hydro, sustainable agriculture, and sustainable transport, integrated waste management, and sustainable charcoal production. The NAMAs were submitted to the UNFCCC NAMA registry in 2016. Further a National REDD+ Strategy and its Investment Plan were developed in 2017. Zambia also prepared the Technology Needs Assessment for both adaptation and mitigation in 2013. In addition, this document has made reference to the following legal documents; • National Green Growth Strategy of 2023 • National Adaptation Plan (NAP) of 2023 • NDC implementation Framework of 2023 • Nature People Climate Investment Plan of 2024 • Green Economy and Climate Change Act of 2024 • 8th National Development Plan 2022 to 2026 • National Water Policy of 2024 • Zambia Water Investment Programme 2022-2030 • National Gender Policy 2023 • National Tourism Policy 2015 • Zambia National Tourism Master Plan 2018 – 2038

		• National Tourism and Hospitality Act 2015 • National Heritage Policy 2020 • Energy Efficiency and Strategy Plan • Integrated Resource Plan • National Energy Compact • National Infrastructure Policy 2023 • Environmental Management Act 2023 • National Irrigation Strategy • National Agriculture Mechanization Strategy • Rural Electrification Master Plan • National Transport Policy 2019 • Integrated Resource Plan 2020 – 2050 • Health National Adaptation Plan 2018

(d)	**Target relative to the reference indicator, expressed numerically, for example in percentage or amount of reduction;**	At least 25% (20,000 Gg CO2 eq.) by 2030 against a base year of 2010 under the business-as-usual scenario with limited international support or by 47% (38,000 Gg CO2 eq.) with substantial international support.
(e)	**Information on sources of data used in quantifying the reference point(s);**	Sources of information include; Zambia's Draft Biennial Transparency Report (to be submitted to the UNFCCC in 2025) Biennial Update Report and Third National Communication submitted to UNFCCC Secretariat in 2020
(f)	**Information on the circumstances under which the Party may update the values of the reference indicators.**	The value of the reference indicator has been updated due to the fact that GHG emissions have been recalculated as a result of change of methodologies.
2	**Time frames and/or periods for implementation:**	
(a)	**Time frame and/or period for implementation, including start and end date, consistent with any further relevant decision adopted by the Conference of the Parties serving as the meeting of the Parties to the Paris Agreement (CMA);**	From 1st January 2015 – 31st December 2030
(b)	**Whether it is a single-year or multi-year target, as applicable.**	Single-year target in 2030.

3	**Scope and coverage:**	
(a)	**General description of the target**	This provisional NDC 3.0 is submitted with a conditional pledge of reducing Greenhouse Gas (GHG) emissions by 25% (20,000 Gg CO_2 eq.) by 2030 against a base year of 2010 under the BAU scenario with levels of international support prevailing in 2015 or by 47% (38,000 Gg CO_2 eq.) with substantial international support.
(b)	**Sectors, gases, categories and pools covered by the nationally determined contribution, including, as applicable, consistent with Intergovernmental Panel on Climate Change (IPCC) guidelines**	Information provided in this provisional NDC 3.0 is consistent with the IPCC guidelines: <u>Sectors and sub-categories</u> 1. Energy-categories include; Energy industries, manufacturing industries and construction, transport, and other sectors. 2. Agriculture Forestry and Other Land Use (AFOLU)-categories include; livestock, Land and Aggregate sources and non-CO_2 emissions sources on land 3. Waste-categories include; solid waste disposal, biological treatment of solid waste, Incineration and Open Burning of Waste, and Wastewater Treatment and Discharge. These sectors were selected because they are key categories and emerging sectors that are contributing to the emission profile of the country. <u>Gases</u> Carbon dioxide (CO_2), methane (CH_4), nitrous oxide (N_2O), hydrofluorocarbons (HFCs), Perfluorocarbons (PFCs) and Sulphur Hexafluoride (SF_6)

(c)	**How the Party has taken into consideration paragraph 31(c) and (d) of decision 1/CP.21**	Zambia has taken a comprehensive approach to enhance its Nationally Determined Contribution (NDC) in line with paragraph 31(c) and (d) of decision 1/CP.21. This involves broadening the scope of sectors under mitigation and adaptation to include cement production under the Industrial Production and Product Use (IPPU) and sustainable waste management. Additionally, other sectors added include infrastructure and tourism, in addition to the existing sectors of agriculture, transport, forestry and energy, and mining. This expansion brings the total number of sectors to ten, demonstrating Zambia's commitment to addressing greenhouse gas emissions from all relevant sectors and sub sectors. IPPU has been included due to its significant reduction potential in the mineral industry, in particular, cement production.
	Para. 31(c) "Parties strive to include all categories of anthropogenic emissions or removals in their nationally determined contributions and, once a source, sink or activity is included, continue to include it"	Zambia has strengthened its NDC by expanding the scope of sectors and sub-sectors contributing to the country's mitigation efforts, with the aim of transitioning towards an economy-wide NDC in future submissions, covering all IPCC sectors and selected sub-categories with significant mitigation potential, subject to resource availability. By considering all sectors and categories as potential contributors to its mitigation efforts, Zambia ensures a comprehensive and inclusive approach to reducing emissions, reflected in its updated NDC, which outlines specific actions for each sector, while also taking into account the need for adaptation and resilience-building measures.
	31(d) "Parties shall provide an explanation of why any categories of anthropogenic emissions or removals are excluded"	Zambia has prioritized sectors with the highest mitigation potential and the greatest likelihood of rapid implementation, aligning with the GHG Inventory Key Category Analysis. This approach supports the country's gradual transition toward an economy-wide NDC.

(d)	**Mitigation co-benefits resulting from Parties' adaptation actions and/or economic diversification plans, including description of specific projects, measures and initiatives of Parties' adaptation actions and/or economic diversification plans**.	Zambia has identified and implemented several mitigation co-benefits from adaptation projects and programs namely: Transforming Landscapes and Resilience and Development, Zambia Integrated Forest Landscape, Zambia Cashew Infrastructure Development Project, Ecosystem Based Adaptation Project, Strengthening Climate Resilience of Agricultural livelihoods in Agro-ecological Regions I & II in Zambia, Zambia Green, Resilient and Transformational Tourism Development. Zambia has also developed the National Adaptation Plan, Green Growth Strategy, Integrated District Development Plans among others.
(e)	**Sectoral targets**	A quantitative analysis of sectoral targets has not yet been undertaken and therefore sectoral targets have not been considered in this submission.
4	**Planning processes:**	
(a)	**Information on the planning processes that the Party undertook to prepare its nationally determined contribution and, if available, on the Party's implementation plans, including, as appropriate:**	In preparing this provisional NDC 3.0 the government of Zambia conducted an NDC stock take to establish level of implementation of its previous NDC. A multisectoral technical working group was established which reviewed the NDC stock take and integrated the findings into this provisional NDC 3.0 document. Other processes included incorporating findings from the reports of the NDC Implementation Framework, draft Biennial Transparency Report, Green Growth Strategy, National Adaptation Plan (NAP), NDC implementation Framework, Nature People Climate Investment Plan, Green Economy and Climate Change Act, 8th National Development Plan and the Carbon stock take for Zambia. Zambia will embark on the revision of the National Policy of Climate Change 2016; The review of the NDC implementation Framework is currently being conducted with the view to access the

		progress made in the implementation of priority mitigation adaptation and cross cutting actions. The National Designated Authority (NDA) for the Green Climate Fund has already been designated and is expected to play a key role of "clearing house or entity" for climate change projects to be funded from GCF in Zambia. The NDA for Green Climate Fund is serving as the National Designated entity (NDE) for the Adaptation Fund. The Zambia National Commercial Bank (ZANACO) was recently accredited as the National Implementing Entity (NIE) for Direct Access under the Green Climate Fund (GCF) and through the Green Economy and Climate Change Act, the country is in the process of establishing a Green Economy and Climate Change Fund (GECCF) with the purposes of increasing the number institutions for resource mobilization and accreditation as national implementing entities. This provisional updated NDC was done with broad stakeholder participation with stakeholders including Government institutions, civil society, private sector and academia, while ensuring gender balance in the process. The effectiveness of the NDC implementation will be ensured through the ongoing development of the revised NDC implementation Framework, NDC Investment Plan and NDC Capacity Building programme. Furthermore, strengthening of Implementation will be done by the development and operationalization of the Framework for Monitoring Reporting and Verification (MRV) systems to track progress of implementation of both the mitigation and adaptation programs and Carbon Registry which will track all the Internationally Transferable Mitigation Outcomes (ITMOs). The NDC Implementation Plan Online Tool is currently being used to monitor and report on the implementation of the NDC as indicated in the implementation framework activities.

(i)	**Domestic institutional arrangements, public participation and engagement with local communities and indigenous peoples, in a gender-responsive manner**	*Institutional arrangements*: The Institutional arrangements for climate change implementation is established in the Green Economy and Climate Change Act of 2024 through an inter-ministerial coordination structure. The Act establishes the Council of Ministers chaired by the Vice President of the country, which is the supreme decision-making body in overseeing Climate Change interventions in the country. It provides policy guidance on climate change programming, mainstreaming, resource mobilization, monitoring and evaluation. The Technical Committee on Climate Change comprises representatives from relevant Ministries and a broad range of other stakeholders, including private sector, civil society, financial institutions, among others. The Committee is the main technical advisory body to the Council of Ministers and is chaired by the Ministry responsible for Climate Change implementation under which there is a dedicated department on climate change which is responsible for coordinating climate change implementation in Zambia. The technical committee is also serving as the Designated National Authority for carbon markets and trading. The Zambia Environmental Management Agency, responsible for preparing national GHG inventories, Biennial Transparency Reports and National Communications, will also serve as the host for the National Carbon Registry. Sub-National structures to coordinate climate change implementation at the sub-national will follow the established national coordination structures under the development plans. *Public participation and engagement*: Public participation and engagement with local communities and in a gender-responsive manner. The stock take exercise involved sub national stakeholder engagement including assessing the contribution of community-based mitigation and adaptation initiatives.

		The NDC stock take process was conducted using a national wide approach to reach those at the heart of implementation of various projects on climate change. All the Ten Provinces of the country were visited to obtain the necessary primary data that informed the NDC stock take exercise. The informants included representatives of local communities and subnational leaders. Government conducted awareness and capacity building programs targeting youth involvement in the NDC processes in all the Ten provinces. Processes are currently under way to conduct more technical studies that will inform the final NDC 3.0. The studies will ensure comprehensive engagement of local communities, sub-national leaders using a gender responsive approach.
(ii) a.	**Contextual matters, including, inter alia, as appropriate: National circumstances, such as geography, climate, economy, sustainable development and poverty eradication**	Zambia has a total surface area of 752,614 km^2 out of which 99 percent is made up of land area and one percent is covered by water. In 2022, the country's population was estimated at 19,610,769, with approximately 60 percent living in rural areas. Further, about 64.3 percent of the population (in 2022) lived on less than US$2.15 a day. Additionally, a rise in urban poverty from 23.4 percent to 31.9 percent remains a key highlight of the country's poverty assessment in the context of weak macroeconomic performance and a succession of negative shocks. In 2023, Zambia's Gross Domestic Product (GDP) grew by 5.8 percent compared to 3.9 percent in 2000. This economic growth rate was largely driven by agriculture and infrastructure developments. Zambia's agricultural sector is the socio-economic backbone

		of the rural population, with 60 percent being dependent on the sector as the main source of income and livelihood. It has been projected that climate change impacts could slow the development process of the country and could cost Zambia, as the country would be losing huge volumes of money in terms of GDP). In order to prevent economic losses resulting from impacts of climate change, the Government of Zambia (GRZ) has integrated climate change concerns in its policies, programmes, plans and strategies to support a low carbon and climate-resilient development pathway and the attainment of the middle-income status envisioned in the country's Vision 2030. The majority of rural households are smallholder farmers who are dependent on rainfed agriculture with limited access to finance for mechanization and irrigation. While the sector offers pathways out of poverty, challenges are exacerbated by the increased frequency of extreme weather events such as rainfall variation, floods that have hampered the growth of agriculture among smallholder farmers and recurrent droughts caused by climate change. In 2023/24, Zambia experienced the driest agriculture season in more than forty years. The drought adversely affected surface water levels, crop and pasture production for an estimated 6,552,027 people, translating into 1,092,005 farming households across the country. The drought was caused by the late onset and prolonged dry spells associated with the El Nino phenomenon which has negatively affected crop production. This comes against the back-drop of at least 2.04 million people who are already severely food insecure and in need of humanitarian assistance beyond the end of the lean season. In addition, the spillover effects of the Covid-19 pandemic meant additional to the demands of humanitarian responses by the government. Approximately 1.1 million households in 84 Districts across 8 provinces were affected. This represents a population of 6.6 million as being in critical need of assistance. The government of Zambia estimated the required resources at US$941 Million as the total funding requirement to respond to the drought emergence.

b.	**Best practices and experience related to the preparation of the nationally determined contribution**	b. The multisectoral institutional framework for coordinating climate change which is described under Section 4 (a) (i) in this document is a good practice for handling a cross-cutting issue like climate change. Zambia conducted a countrywide risk vulnerability assessment (CVA) to arrive at scenarios for enhancing adaptation measures. The CVA informed the preparations of the country's NDC implementation framework and national adaptation plan. The NDC stocktake and the GHG inventory exercise have been critical to informing the country of progress made on reducing GHG emissions. These practices have been critical to the preparations of Zambia's NDC. The development of the NDC and carbon stocktake to inform the NDC revision is one of the best practices followed in the preparation of this provisional NDC. Furthermore, the constitution of the Technical Working Group composed of sector experts to update the NDC has also worked as an emerging good practice. As a Least Developed Country (LDC), Zambia has flexibility in submitting its Biennial Transparency Report and plans to submit a combined BTR1/NC4 in 2025. This submission will help inform substantive revisions to the NDC.
(c)	**Other contextual aspirations and priorities acknowledged when joining the Paris Agreement**	Achieving the aspirations of the National Development Plan and sustainable development goals requires substantial financial and technical assistance. Zambia's debt burden can be partly attributed to climate change, thereby constraining the country's capacity for enhancing ambition for climate action. Therefore, it is anticipated that the Paris Agreement will provide a mechanism for reducing the cost of financing climate change. Furthermore, the Paris Agreement is one of the important mechanisms for achieving gender equality by supporting the differently abled and the youths affected by the impacts of climate change. Additionally, climate change offers

		opportunities for enhancing investments in renewable energy and energy efficiency technologies, nature-based solutions, and climate-smart projects.

(b)	**Specific information applicable to Parties, including regional economic integration organizations and their member States, that have reached an agreement to act jointly under Article 4, paragraph 2, of the Paris Agreement, including the Parties that agreed to act jointly and the terms of the agreement, in accordance with Article 4, paragraphs 16–18, of the Paris Agreement**	Not applicable
(c)	**How the Party's preparation of its nationally determined contribution has been informed by the outcomes of the global stocktake in accordance with Article 4, paragraph 9, of the Paris Agreement**	Zambia conducted the NDC stocktake of the action identified in the NDC implementation framework on adaptation and mitigation. The stocktake report informed the government of Zambia's consolidation and broadening the scope of priority sectors for contributing to the achievement of the 1.5-degree temperature goal. These priority sectors covering agriculture, forestry, energy, transport, coal, waste, industrial processing, and products are key to achieving the outcomes of the global stocktake in accordance with decision **1/CMA.5** paragraph 28 (a), (d) & (g).

(d)	**Each Party with a nationally determined contribution under Article 4 of the Paris Agreement that consists of adaptation action and/or economic diversification plans resulting in mitigation co-benefits consistent with Article 4, paragraph 7, of the Paris Agreement to submit information on:**	(i) Implementing response measures rising from interventions from climate change has created other social-economic challenges in relation to high levels of debt, increasing expenditure, social protection, opportunity cost of carbon projects, forest sector (charcoal) and high cost of alternatives to charcoal and rising costs of energy and rising inflation and foreign exchange. As a follow up step to this NDC 3.0, Zambia will revise the NDC implementation frame work to broaden the scope for mobilizing highly concessional financing including grants and interest free loans. The framework will also include promotion of fiscal policy instruments and financial sustainability tools that attract green financing. The framework will also emphasize utilization of instruments such as Public Private Partnership, Equity and private Sector investments.
(i)	**How the economic and social consequences of response measures have been considered in developing the nationally determined contribution**	(ii) As one of the least contributors 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. (iii) In terms of implementation, Zambia will take integrated landscape, ecosystem-based adaptation and nature-based solutions approaches to enhance synergies between adaptation and mitigation actions. Zambia has six major watersheds: Tanganyika; Luapula; Chambeshi; Luangwa; Kafue; and Zambezi.

(ii)	**Specific projects, measures and activities to be implemented to contribute to mitigation co- benefits, including information on adaptation plans that also yield mitigation co- benefits, which may cover, but are not limited to, key sectors, such as energy, resources, water resources, coastal resources, human settlements and urban planning, agriculture and forestry; and economic diversification actions, which may cover, but are not limited to, sectors such as manufacturing and industry, energy and mining, transport and communication, construction, tourism, real estate, agriculture and fisheries.**	The adaptation measures comprise three (3) goals/programs and 13 priority actions, which will also result in mitigation co benefits. The programs include: ***Program 1:*** **Adaptation of strategic productive systems (agriculture, tourism, water)** Which include: 1. Guaranteed food security through diversification and promotion of Climate Smart Agricultural (CSA) practices for crop, livestock and fisheries production including conservation of germplasm for land races and their wild relatives. 2. Develop a National Wildlife Adaptation Strategy and ensure its implementation through supportive policies, local community, civil society and private sector participation 3. Protection and conservation of water catchment areas and enhanced investment in water capture, storage and transfer (linked to agriculture, energy, ecological, industrial and domestic use purposes) in selected watersheds. ***Program 2: Adaptation of strategic infrastructure and health systems*** Which include: 1. Institutionalize integrated land use planning compatible with sustainable management of natural resources and infrastructure development 2. Mainstream climate change in the National Health Policy, Environmental Health (EH) Policy, and Water and Sanitation Policy.

		3. Enhance decentralized climate information services for early warning and long-term projections on the effects of climate change to support sustainable management of the production systems, infrastructure development and public health. 4. Increase gender equality and inclusiveness in Community Forest Management Groups (CFMG). 5. Reduce vulnerability and strengthened resilience of livelihoods in forest communities ***Program 3: Enhanced capacity building, research, technology transfer and finance for adaptation*** Which include: 1. Capacity building in Climate Smart Agriculture (CSA), Sustainable Forest Management (SFM), Sustainable Fisheries and Aquaculture (SFA), Renewable Energy and alternative technologies (RET), and Early Warning Systems (EWS), Change management and climate change planning. 2. Water technologies for savings, recycling, irrigation and sustainable management for household, agriculture and industrial purposes. 3. Strengthening of an insurance market against climate change induced risks related to climatic hazards.

(e)	**Adaptation**	An In-depth countrywide Vulnerability Assessment was conducted in 2020 to provide an assessment and analysis of the effect of dry spells, floods and pest infestation on different sectors in order to understand their impacts on sector performance and recommend required actions for response, rehabilitation and recovery. It outlines recommendations for the following sectors: Agriculture and food security; Health; Nutrition; Water, Sanitation and Hygiene; Education; and Development Project and Safety net programmes being implemented in communities. This Vulnerability Assessment was updated upon in 2023 to assess the vulnerability of agroecological regions and geographical regions to climate induced hazards such as droughts and floods. This vulnerability assessment informed the development of the National Adaptation Plan. Additionally, another vulnerability Assessment will be conducted to assess the vulnerability of the microclimate system in the country on various sectors. This vulnerability assessment will provide critical information to the NDC preparation. **Preliminary indicators for tracking progress on adaptation are provided in Annex 2.**
5	**Assumptions and methodological approaches, including those for estimating and accounting for anthropogenic greenhouse gas emissions and, as appropriate, removals:**	
(a)	**Assumptions and methodological approaches used for accounting for anthropogenic greenhouse gas emissions and removals corresponding to the Party's nationally determined contribution, consistent with decision 1/CP.21, paragraph 31, and accounting**	Zambia prepared its Greenhouse Gas (GHG) Inventories for the Third National Communication (TNC) and Biennial Update Report (BUR) using the 2006 IPCC Guidelines, which informed the revised Nationally Determined Contribution (NDC) baseline. As a Least Developed Country (LDC), Zambia has flexibility in submitting its Biennial Transparency Report (BTR) under Decision **18/CMA**.1 and plans to submit a combined BTR1/NC4 in 2025. This report will follow the 2016 IPCC Guidelines, including the 2019 Refinement, and cover a GHG inventory time series from 1990 to

	guidance adopted by the CMA	2022. Additionally, it will track progress toward NDC targets and provide details on financial, technological, and capacity-building support needs and support provided for implementation of its NDC. Accounting information will align with Decision **4/CMA.1**, and methodologies will follow **Decision 5/CMA.3**. Final accounting towards the target, that will take place in 2032, may depend on resource availability. Zambia is also participating in the market-based mechanisms on emission reductions as a way of raising its ambitions.
(b)	**Assumptions and methodological approaches used for accounting for the implementation of policies and measures or strategies in the nationally determined contribution**	Not applicable.
(c)	**If applicable, information on how the Party will take into account existing methods and guidance under the Convention to account for anthropogenic emissions and removals, in accordance with Article 4, paragraph 14, of the Paris Agreement,**	Zambia's current GHG inventory is in accordance with decision 24/CP.19 and hence the country will use 2006 IPCC Guidelines.
(d)	**IPCC methodologies and metrics used for estimating anthropogenic greenhouse gas emissions and removals**	2006 IPCC guidelines was used for estimating GHG emissions and removals. Global warming potentials (GWP) for a 100 -year time horizon from the IPCCs Second Assessment Report was used to calculate CO2 equivalents for Third National Communications and Biennial Update Report (BUR).

(e)	Sector-, category- or activity-specific assumptions, methodologies and approaches consistent with IPCC guidance, as appropriate, including, as applicable:	
(i)	**Approach to addressing emissions and subsequent removals from natural disturbances on managed lands**	Disturbances have been identified as areas affected by late burning for various reasons such as use of fire for land preparation and control of ticks to fight against livestock diseases [4]. As such early burning, in the context of both indigenous and conventional knowledge has been classified as a management practice. The two burning regimes are normally conducted from May-July and August-October for both early burning and late burning respectively.
(ii)	**Approach used to account for emissions and removals from harvested wood products**	Not estimated but will be undertaken once resources and information are available.
(iii)	**Approach used to address the effects of age-class structure in forests;**	Emissions and removals in managed forests in the period 2021 – 2030 will be accounted for as the deviation from a projected forward-looking forest reference level, with regards to dynamic age-related forests characteristics.
(f.)	**Other assumptions and methodological approaches used for understanding the nationally determined contribution and, if applicable, estimating corresponding emissions and removals, including:**	

[4] 4 GRZ 2015: Zambia National Strategy to Reduce Emissions from Deforestation and Forest Degradation

(i)	**How the reference indicators, baseline(s) and/or reference level(s), including, where applicable, sector-, category- or activity- specific reference levels, are constructed, including, for example, key parameters, assumptions, definitions, methodologies, data sources and models used**	The GHGi was prepared in accordance with the requirements of the United Nations Framework Convention on Climate Change (UNFCCC) using the Intergovernmental Panel on Climate Change (IPCC) guidelines. Specifically, the 2006 IPCC guidelines for National Greenhouse Gas Inventories and the 2006 IPCC software Version 2.69.7235 were employed. Additionally, the Emission Factor Database (EFDB) Version 2.7 of November 2017 was utilized. For the Energy, Industrial Processes and Product Use (IPPU), and Waste sectors, the Tier 1 method and default emissions factors were used to estimate emissions. In contrast, the Tier 2 method was employed for the Land subcategory under Agriculture, Forestry, and Other Land Use (AFOLU), while the Tier 1 method was used for the remaining subcategories under AFOLU. The baseline greenhouse gas emission projections for the energy sector involved an analysis of energy demand trends and GHG emissions during the period 2010-2050. The Long-range Energy Alternatives Planning System (LEAP) was used to assess the projected energy demand and GHG emissions. For the Industrial Processes and Product Use sector, emission projections were determined using carbon intensity derived from historical emissions. Emissions projections for Livestock and aggregate sources and non-CO2 emission sources on land categories were undertaken based on emissions per capita. The projected emissions were calculated as a product of per capita emissions and projected human population. Baseline emissions projections for Land (forest land, crop land, grassland, and settlements) were determined by applying an annual deforestation rate of 0.7% to the historical baseline emissions. The Tier 2 method was employed for the Land subcategory and livestock under AFOLU, while the Tier 1 method was used for Aggregate sources and non-CO2 emissions. Emissions projections for Waste categories were undertaken based on emissions per capita. The projected emissions were calculated as a product of per capita emissions and projected human

		population. A baseline projection for transport was calculated by assuming that the percent of Zambia's total emissions attributed to freight will reach current average levels in the Southern African Development Community (SADC) region (scaled by population) in 2050. The annual growth rates required for this transition were then calculated, and this growth rate (8.85% per annum) was applied to the 2016 inventory emissions and projected out to 2050. A baseline projection for forest land was calculated based on the technical assessment of the proposed forest reference emission level of Zambia submitted in 2021. Zambia's Forest Reference Emission Level (FREL) was developed using methodologies consistent with the IPCC guidelines, particularly the 2006 IPCC Guidelines for National Greenhouse Gas Inventories. The FREL relied on a variety of data sources, including national forest inventories, satellite data, government reports, and research studies. Models played a key role in estimating emissions and projecting future trends. The net CO2 emissions were calculated as the sum of emissions and removals, using the current deforestation rate of 0.7% to project forward the changes in emissions and removals. A baseline projection for cropland was calculated by using a population growth rate to determine the projected CO2 emissions. A population growth rate of 2.9% up to 2030 and then a lower growth rate of 2.48% for the period 2030-2050 was assumed. Population data was obtained from World meter (2021). A baseline projection for waste was calculated by assuming that the currently low amount of waste generation per capita increases with GDP and that the total amount of waste increases with population. Furthermore, it was assumed that the currently low rate of collection and landfilling of waste increases up to 80% by 2050.

(ii)	**For Parties with nationally determined contributions that Contain non-greenhouse-gas components, information on**	Not applicable. Precursor gases to include NMVOC, NOx, and SO^2, were not included in Zambia's NDC. However, these gases have been accounted for and reported in the Biennial Update Report
(iii)	**For climate forcers included in Nationally determined contributions not covered by IPCC guidelines**	Precursor emissions for the BUR GHG Inventory Report were estimated using the European Environment Agency (EMEP/EEA) Air Pollutant Emission Inventory Guidebook (2019).
(iv)	**Further technical information, as necessary**	Not applicable.
(g)	**The intention to use voluntary cooperation under Article 6 of the Paris Agreement, if applicable.**	Zambia will use voluntary cooperation under Article 6 of the Paris Agreement to fulfil part of its contribution. Further, the country's enhanced legal framework through the Green Economy and Climate Change Act 2024, the carbon market framework, signed agreements with a number of countries as well as the carbon registry infrastructure and projects under development support the implementation of Article 6.
6	**How the Party considers that its nationally determined contribution is fair and ambitious in the light of its national circumstances:**	

(a)	**How the Party considers that its nationally determined contribution is fair and ambitious in the light of its national circumstances**	Zambia considers this provisional NDC as fair and ambitious enough to contribute to low carbon and climate resilient economy by 2030 in accordance with its national circumstance and desire to become a low carbon and climate resilient prosperous middle-income country by 2030. Zambia is a low contributor to the global greenhouse gas emission. In developing the NDC, Zambia considered the general principles and provisions of the Convention and the Paris Agreement, especially those related to Common but Differentiated Responsibilities and Respective Capabilities (CBDR) and equitable access to atmospheric space. The country's NDC is guided by the Vision 2030 and the 8th National Development Plan, and it desires to reduce poverty, deforestation, forest degradation, improved energy access. To increase the adaptive capacity to droughts, floods and extreme temperatures. The country desires to attain a low carbon, climate-resilient and socially inclusive sustainable economic growth through sustainable development and a prosperous middle-income nation by 2030 in line with the country's Vision 2030. The successful implementation of Zambia's NDC is dependent on the level of support to be provided through the Convention and other multilateral and bilateral arrangements.
(b)	**Fairness considerations, including reflecting on equity**	As a Least Developed Country, Zambia has volunteered to commit to reducing emissions unconditional and conditional by 25% and 47% respectively. This commitment also entails that the Government of Zambia is utilizing resources from domestic budgetary allocations to address climate action.
(c)	**How the Party has addressed Article 4, paragraph 3, of the Paris Agreement**	Zambia's updated and revised nationally determined contribution represents a progression beyond its previously communicated nationally determined contribution, as it broadens the scope of sectors by adding tourism, infrastructure, water as well as IPPU, especially cement. This NDC continues to elaborate the adaptation components by developing indicators and tools that will enable the country to

		track progress on building resilience in both the human and physical systems.
(d)	**How the Party has addressed Article 4, paragraph 4, of the Paris Agreement**	By consecutively adding new sectors as it revises and updates its NDC, Zambia has addressed Article 4 paragraph 4 as it moves towards an economy wide approach
(e)	**How the Party has addressed Article 4, paragraph 6, of the Paris Agreement.**	Although Zambia is an LDC and could have prepared a communication on strategy, plan and actions for low greenhouse gas emissions development reflecting its special circumstances in line with Article 4 paragraph 6 of the Paris Agreement, the country opted to prepare a full-fledged NDC as a demonstration of its ambitious efforts to contribute to global efforts
7	**How the nationally determined contribution contributes towards achieving the objective of the Convention as set out in its Article 2:**	
(a)	**How the nationally determined contribution contributes towards achieving the objective of the Convention as set out in its Article 2**	Zambia's provisional NDC will result in a substantial reduction of its emissions and thereby contribute to achieving to the objective of the Convention as set out in Article 2.
b)	**How the nationally determined contribution contributes towards Article 2, paragraph 1(a), and Article 4, paragraph 1, of the Paris Agreement**	By reducing Zambia's emissions, this NDC contributes to the global goal to strengthen response in addressing climate change on the basis of equity and within the context of sustainable development and efforts to eradicate poverty in line with Article paragraph 1(a) and Article 4 parag.1 of the Paris Agreement

Annex 2 Indicators for Adaptation

No.	Indicator (Global Goal on Adaptation)	National Indicators (Zambia NDC)	Baseline in 2020	Desired Status by 2030	Actual Status in 2030
1.	Significantly reducing climate-induced water scarcity and enhancing climate resilience to water-related hazards towards a climate-resilient water supply, climate-resilient sanitation and towards access to safe and affordable potable water for all.	Water security of all Zambians is promoted and protected, via gender-responsive and climate-smart water infrastructure	Low	High	
2.	Attaining climate-resilient food and agricultural production and supply and distribution of food, as well as increasing sustainable and regenerative production and equitable access to adequate food and nutrition.	Strengthened climate resilience of Agricultural production and productivity Enhanced early warning systems Adoption of improved livestock management practices that enhance livelihoods	Low	High	
3.	Strengthening resilience against climate-related health impacts, promoting climate-resilient health services, and reducing climate-related morbidity and mortality, particularly in the most vulnerable communities	Increased resilience of the health sector to climate change	Medium	High	
4.	Reducing climate impacts on ecosystems and accelerating the use of ecosystem-based adaptation and nature-based solutions, including through management, enhancement, restoration and conservation and the protection of terrestrial, inland water, mountain, marine and coastal ecosystems	Catchment areas restored	Low	High	

No.	Indicator (Global Goal on Adaptation)	National Indicators (Zambia NDC)	Baseline in 2020	Desired Status by 2030	Actual Status in 2030
5.	Increasing the resilience of infrastructure and human settlements to climate change impacts to ensure basic and continuous essential services for all, and minimizing climate-related impacts on infrastructure and human settlements	Enhanced adaptive capacity and Strengthened resilience of infrastructure to climate shocks	Low	High	
6.	Substantially reducing poverty and livelihood vulnerability in areas with high climate risk for communities, in particular by promoting the use of adaptive social protection measures	Increased gender equality and inclusiveness for both women and men in Community Forest Management Groups (CFMG). Reduced vulnerability and strengthened resilience of livelihoods in forest communities	Low	High	
7.	Protecting cultural heritage from the impacts of climate-related risks by developing adaptive strategies for preserving cultural practices and heritage sites and by designing climate-resilient infrastructure, guided by traditional knowledge, Indigenous Peoples' knowledge and local knowledge systems;	Enhanced adaptive capacity and Strengthened resilience of infrastructure to climate shocks Strengthened Institutional Capacity for Coordination Climate Change Projects and Programmes in Zambia	Low	High	