REPUBLIC OF NAMIBIA

Intended Nationally Determined Contributions (INDC) of

The Republic of Namibia to the United Nations Framework Convention on Climate Change

September 2015

Table of Contents

List of acronyms and abbreviations

°C	Degrees centigrade
AFOLU	Agriculture, Forest and Other Land Use
a-INDC	Adaptation INDC
BAU	Business As Usual
CCU	Climate Change Unit
CH_4	Methane
CIA	Central Intelligence Agency
CO_2	Carbon dioxide
CP or COP	Conference Of Parties
CSO	Civil Society Organisation
DSM	Demand Side Management
eq	Equivalent
GCM	Global Circulation Model
GDP	Gross Domestic Product
Gg	Gigagram
GHG	Greenhouse Gas
ha	Hectare
INDC	Intended Nationally Determined Contribution
IPCC	Inter-Governmental Panel on Climate Change
IPPU	Industrial Processes and Product Use
km	kilometre
M	Million
MET	Ministry of Environment and Tourism
m-INDC	Mitigation INDC
N_2O	Nitrous oxide
NAI	Non Annex I
NAMA	Nationally Appropriate Mitigation Action
NAP	National Adaptation Plan
NCCC	National Climate Change Committee
NGO	Non-governmental Organisation
NPC	National Planning Commission
UNFCCC	United Nation Framework Convention on Climate Change
US$	United States Dollar

INDC of the Republic of Namibia to the UNFCCC

Preamble

Namibia as a Non-Annex I Party to the UNFCCC does not have commitments under the Convention. However, Namibia takes climate change issues seriously and the submission of the INDC is a clear testimony that the country is committed to fight climate change. To this end, Namibia has put in place policies and strategies to deal with the adverse impacts of climate change. We see climate change as a major threat to the economic development and the general welfare of the Namibian society.

Implementation of this INDC will represent a major challenge to the government of Namibia. Multiple shortcomings and constraints will have to be overcome while fulfilling the needs for systemic, Institutional and human capacity building, access and transfer of the latest environment friendly and clean production technologies, mitigation techniques and sufficient financing in a timely manner for smooth and successful implementation of the INDC. It is thus of vital importance that the Green Climate Fund be capitalised rapidly in order to provide the much needed funds to developing countries to enable them to meet their intended targeted contribution. The cost of implementation of the INDC components of Namibia will require about US$ 33 billion at 2015 prices.

In spite of the country's socio-economic development being constrained by various factors, Namibia is already unconditionally contributing a share of its resources to combat climate change. This is expected to be about 10% of the INDC requirements in the future. Therefore, the implementation of this INDC is fully conditioned to the provision of the differential 90% of means of implementation required such as finance, technology transfer and the associated capacity building from Annex1 Parties as stipulated under Article 4 of the UNFCCC.

Summary

In conformity with decisions 1/CP.19 and 1/CP.20 of the Conference of the Parties, the Republic of Namibia has to submit its Intended Nationally Determined Contributions (INDC) to the United Nations Framework Convention on Climate Change towards achieving the ultimate objective of the Convention as set out in Article 2 before the 01 October 2015. Namibia is thus pleased to submit its contribution towards meeting this objective along with information to facilitate clarity, transparency and understanding of its INDC.

The preparation of the INDC report focused mainly on existing policies, strategies and action plans developed and currently being implemented. In the preparation of this report, we prioritised and favoured options from the very broad possibilities that exist for both mitigation and adaptation, as well as the most attractive ones, on the basis of their potential for successful adoption at national level. Some of these actions will yield positive results in both mitigation and adaptation areas while benefiting other sectors of the economy at large.

Namibia, as a responsible Party, has showed the willingness to tackle climate change in support to international efforts and has already unconditionally embarked on mitigating GHG emissions. The country is geared towards a progressive decoupling of carbon emissions from economic growth to match the low carbon pathway embedded in its policies and strategies. Namibia is now presenting its ambitious potential contribution to reduce its emissions while also increasing its sinks conditional on

> Namibia aims at a reduction of about 89% of its GHG emissions at the 2030 time horizon compared to the BAU scenario. The projected GHG emissions to be avoided in 2030 is of the order of 20000 Gg CO2-eq inclusive of sequestration in the AFOLU sector and compared to the BAU scenario

the support of the international community.

The contribution will be economy-wide and addresses the IPCC sectors Energy, IPPU, AFOLU and Waste. The reference is the Business As Usual (BAU) scenario to the 2030 time horizon based on the GHG inventory of 2010 and socio-economic projections (Table below).

Year	2010	2020	2030
Emissions (Gg CO2-eq)	-1339	12 441	22 647

Mitigation will be achieved in all sectors and the major contributor will be the AFOLU sector as depicted below.

Sector	Mitigation potential (Gg CO_2-eq)	% BAU scenario in 2030
Energy	1301	5.7
IPPU	36	0.2

AFOLU	18 513	81.7
Waste	205	0.9
Total	**20 054**	**88.6**

The measures contributing to mitigation in the different sectors are provided in the table below.

Measure	GHG amount	% of BAU scenario in 2030
ENERGY		
Increase share renewables in electricity production from 33% to 70%	740	3.3
Increase energy efficiency and DSM	51	0.2
Mass transport in Windhoek, car and freight pooling	510	2.3
IPPU		
Replace 20% clinker in cement production	36	0.2
AFOLU		
Reduce deforestation rate by 75 %	13 537	59.8
Reforest of 20 000 ha per year	1779	7.9
Restore 15 M ha of grassland	1359	6.0
Reduce removal of wood by 50 %	701	3.1
Afforest 5000 ha per year	578	2.6
Plant 5000 ha of arboriculture per year	358	1.6
Fatten 100 000 cattle heads in feedlots	201	0.9
Soil carbon	180	0.8
WASTE		
Transform 50% MSW to electricity and compost	205	0.9

Emissions already avoided unconditionally by Namibia prior to 2010 are included in the BAU scenario. In 2010 reductions of the order of 162 Gg CO_2-eq was achieved unconditionally through government funding and this is estimated to exceed 216 Gg CO_2-eq in 2015. This emission reduction will result from investments made through the Solar Revolving Fund, the commissioned hydro generation plant of Ruacana and other DSM measures being implemented and planned. This unconditional share will represent about 10% of the mitigation potential when taking into consideration implemented and planned measures up to 2030.

The global goal is to meet the ultimate objective of the Convention namely, *the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system* and limit global warming to below 2°C and Namibia is willing and strongly committed to contribute its fair share in this global objective. This is so despite the fact that the country is already operating with low emissions compared to the developed countries. Namibia aspires to continue its development for improving the welfare of its population while reducing poverty index, increase food security, eliminate societal inequalities, guarantee access to safe water and health, empower and educate all citizens.

Facts about Namibia

- Percentage contribution in Global emissions – 0.059% in 2010
- Per capita emissions decreased from 0.0146 Gg CO_2-eq to 0.0130 Gg CO_2-eq from 2000 to 2010
- GDP production increased from about US$ 200 to 300 per unit emission

Considering the above facts, Namibia therefore considers it's INDC as fair, equitable, ambitious and adequate, given its development status and national circumstances.

Subject to provision of appropriate resources after the submission of the INDC, Namibia will strengthen its systemic, institutional and human capacities for the successful implementation, monitoring and reporting on its INDC. Namibia will need the support of the international community to overcome existing barriers, for the appropriation of technologies for both mitigation and adaptation, a sustained capacity building programme in the prioritized areas, technical support and funding to the tune of some 33 billion US$. This enhanced Measuring, Reporting and Verification framework will better track progress and outcomes of the INDC activities, which will be reported in the National Communications and Biennial Update Reports regularly submitted to the secretariat.

Some of the other prerequisites for a successful and quick implementation of the INDC that the country will ensure are:

- Political stability;
- Good governance;
- An independent efficient judicial system;
- Appropriate legislation;
- Provision of incentives; and
- Implementation of robust awareness campaigns

The present existing structure for the implementation of climate change activities will be adopted for the INDC. The multi-sectoral NCCC will oversee the implementation and coordination of sector-specific and cross-sectoral INDC activities while also providing advice and guidance on them. The NCCC will report to Cabinet through the NPC while the Parliamentary Standing Committee on Economics, Natural Resources and Public Administration which usually advises Cabinet on relevant policy matters will do so for the INDC also. The MET, which is responsible for all environmental issues in the country and is also the National Focal Point to the UNFCCC will report on INDC activities to the UNFCCC. Met will also monitor, track and follow COP decisions on INDCs, including funding possibilities and transmit these to the concerned institutions. Sectoral activities will rest with the respective Ministries through their concerned Directorates.

National Circumstances

National development goals and priorities

Namibia is still a young nation having obtained its independence since only a quarter of a century. The country is still setting a robust base for economic development to meet the aspirations of its people while meeting the international agenda. In this context, Namibia is signatory to numerous Conventions and is striving to maintain climate change as a priority within its development framework. Namibia's development is guided by its long-term National Policy Framework, Vision 2030, which transcribes into National Development Plans for 5 year periods. The country is currently in its fourth NDP that privileges sustainability within the economic development agenda and aims at a low carbon economy.

Climate change goal and context, the long term vision for GHG emissions management

Namibia is located in the South western region of the Africa continent, covers a land area of 825 418 km^2 and has a 1 500 km long coastline on the South Atlantic Ocean. The country is one of the biggest and driest in sub-Saharan Africa with characteristic high climatic variability in the form of persistent droughts, unpredictable and variable rainfall patterns, high temperature variability and scarcity of water. On account of this climatic situation, Namibia stands ~~a~~ high risks to suffer from the impacts of climate change. This has prompted government to take necessary actions to mitigate and adapt to climate change. Hence, the National Policy on Climate Change for Namibia was produced in 2011 to better translate government's will and commitment to tackle climate change. Furthermore, a National Climate Change Strategy and Action Plan for the period 2013-2020 has also been developed and paves the way to the strategic options to be adopted for coping with climate change challenges while contributing to the international agenda to meet decisions of the Conference of the Parties (COP).

The cross-sectoral National Climate Change Committee (NCCC), which was created in 1999, oversees all climate change related activities. The latter are implemented by the Ministry of Environment and Tourism (MET) through the climate change unit (CCU) that was created to follow and monitor climate change projects. This unit also ensures that the reporting obligations of the country towards the Convention are met as and when necessary. Namibia has thus produced and submitted two National Communications and was the first NAI Party to submit the Biennial Update Report which, included impacts of GHG emission reduction for initiatives implemented up to 2010.

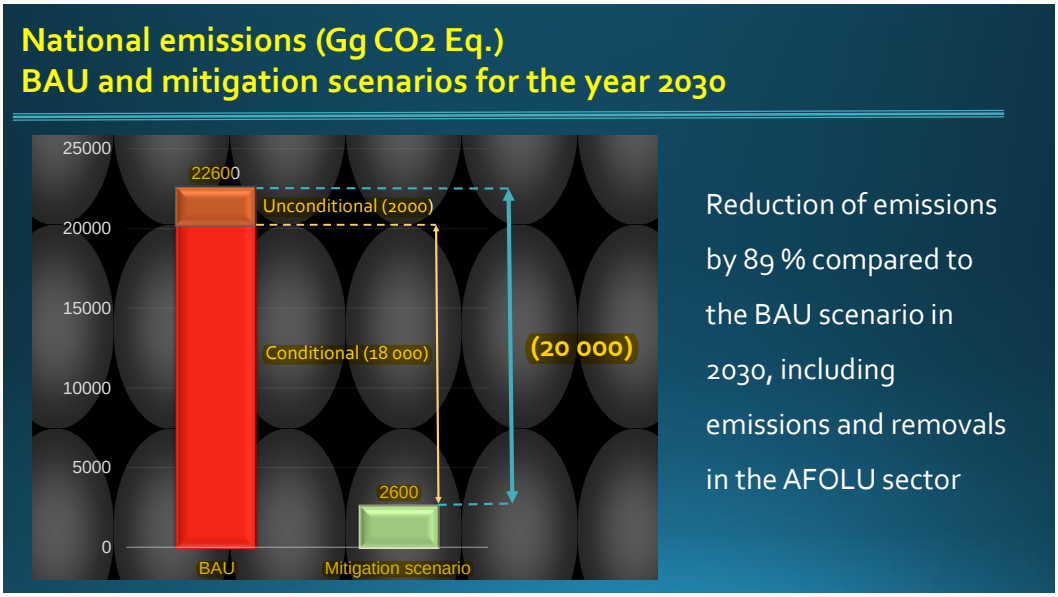
Though clear mitigation and adaptation plans have not been fully developed up to now, the endeavour is real since these strategies have been mainstreamed in the overall national policy, strategies. Namibia is presently developing its first Nationally Appropriate Mitigation Action (NAMA) and is working on its National Adaptation Plan (NAP) to better guide the country on its way to mitigate and adapt to climate change. The preparation of the INDC report focused mainly on existing policies, strategies and action plans developed and currently being implemented. In the preparation of this report, we prioritised and favoured options from the very broad possibilities that exist for both mitigation and adaptation, as well as the most attractive ones, on the basis of their potential for successful adoption at national level. Some of these actions will yield positive results in both mitigation and adaptation areas while benefiting other sectors of the economy at large.

Mitigation Contribution

Timeframe	2030
Type of Contribution	The contribution will be economy-wide. • Emission reduction measures and actions have already been implemented unconditionally, using the limited resources of the country within the national budgets. • Thus, international support will be required to top up on the country's efforts and initiatives to meet the differential between the unconditional and conditional targets fixed in the INDC. The cost of implementation of the m-INDC component is estimated at US$ 10.4 billion at 2015 prices. • Namibia does not rule out the use of international market-based mechanisms to achieve its 2030 target in accordance with agreed accounting rules.
Reference	The reference is the Business As Usual (BAU) scenario to the 2030 time horizon based on the GHG inventory of 2010 and socio-economic projections.

Year	2010	2020	2030
Emissions (Gg CO2-eq)	-1339	12 441	22 647

Target level	Namibia aims at a reduction of about 89% of its GHG emissions compared to the BAU scenario at the 2030 time horizon. The projected GHG emissions avoided is of the order of 20 000 Gg CO2-eq in 2030, inclusive of sequestration in the AFOLU sector when compared to the BAU scenario. Emissions avoided prior to 2010 are included in the BAU scenario. Post 2010 reductions of the order of 162 Gg CO_2-eq achieved unconditionally through government funding are not accounted for in the BAU scenario. It is estimated at some 216 Gg CO_2-eq in 2015, already representing about 1% of the BAU scenario in 2030. The unconditional share will reach about 10% when taking into consideration implemented and planned measures up to 2030 which are accounted for in the BAU scenario.



The contribution of the IPCC sectors are given in the table below.

Sector	Mitigation potential (Gg CO_2-eq)	% of BAU scenario in 2030
Energy	1301	5.7
IPPU	36	0.2
AFOLU	18 513	81.7
Waste	205	0.9
Total	**20 054**	**88.6**

Sectors

The sectors covered in this INDC are the four IPCC sectors Energy, Industrial Production and Product Use, Agriculture Forestry and Other Land Use (AFOLU) changes, and Waste.

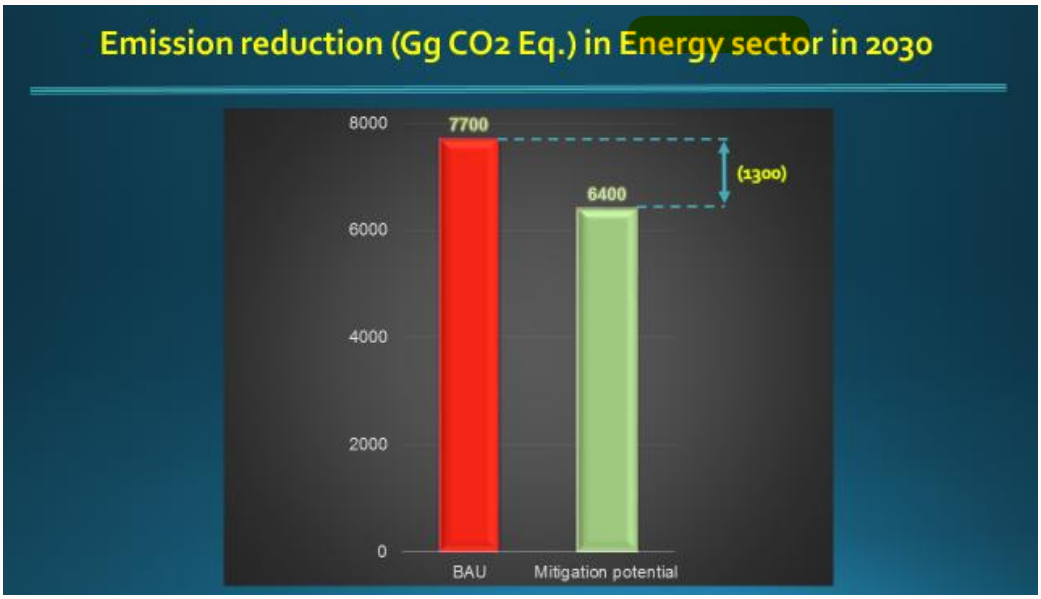
ENERGY

The rationale behind the measures in the energy sector relates to broad actions to shift from fossil fuels to renewable energy sources, improve energy efficiency through various DSM measures, and reduce fossil fuel consumption through a series of measures in the road transportation sector.

The salient features are:

- Increase share of renewable energy (hydro, solar, wind and biomass) in electricity production from 33% in 2010 to about 70% in 2030;
- Implement an energy efficiency programme to reduce consumption by about 10% in 2030;
- Commission of a mass transport system in City of Windhoek to reduce number of cars (taxis and private) by about 40%;
- Implement a car pooling system to reduce fossil fuel consumption; and
- Improve freight transportation through bulking to reduce the number of light load vehicles by about 20%

These measures are expected to result in a reduction of some 1300 Gg CO_2-eq.

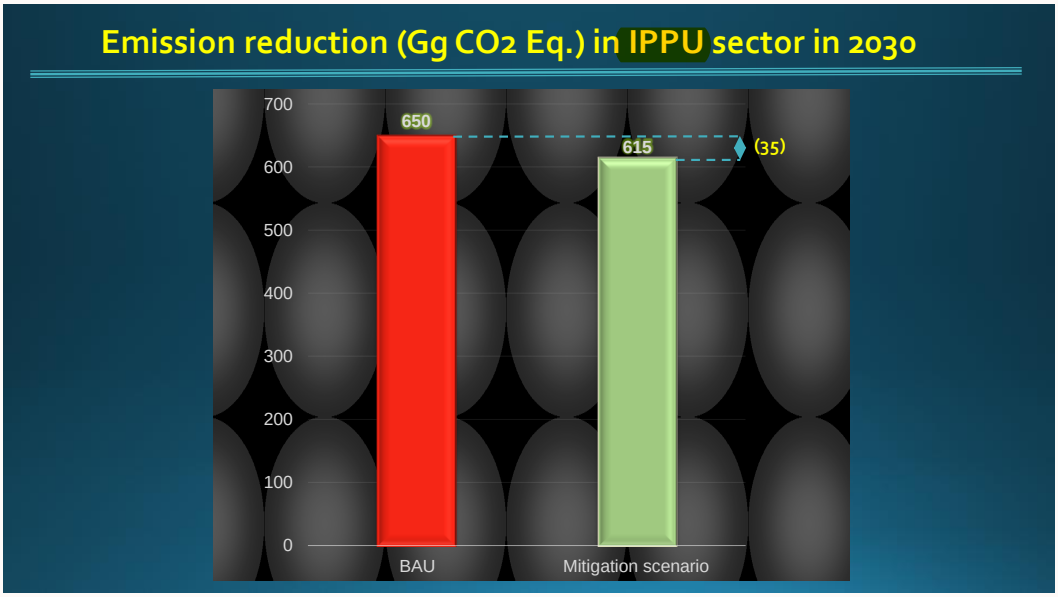


Potential contribution of the different measures in the energy sector are listed below.

Measure	GHG amount	% of BAU scenario in 2030
Increase share renewables in electricity production from 33% to 70%	740	3.3
Increase energy efficiency and DSM	51	0.2
Mass transport in Windhoek, car and freight pooling	510	2.3

IPPU

Namibia is not a highly industrialized country and thus emissions from this sector are minimal. However, there exists a cement production unit with clinker production integrated. This process offers a potential for mitigation through the partial replacement of clinker in cement production. Replacing some 20% of the clinker will abate emissions by about 35 Gg CO_2-eq.



Potential contribution of the different measures in IPPU sector are listed below.

Measure	GHG amount	% of BAU scenario in 2030
Replace 20% clinker in cement production	36	0.2

AFOLU

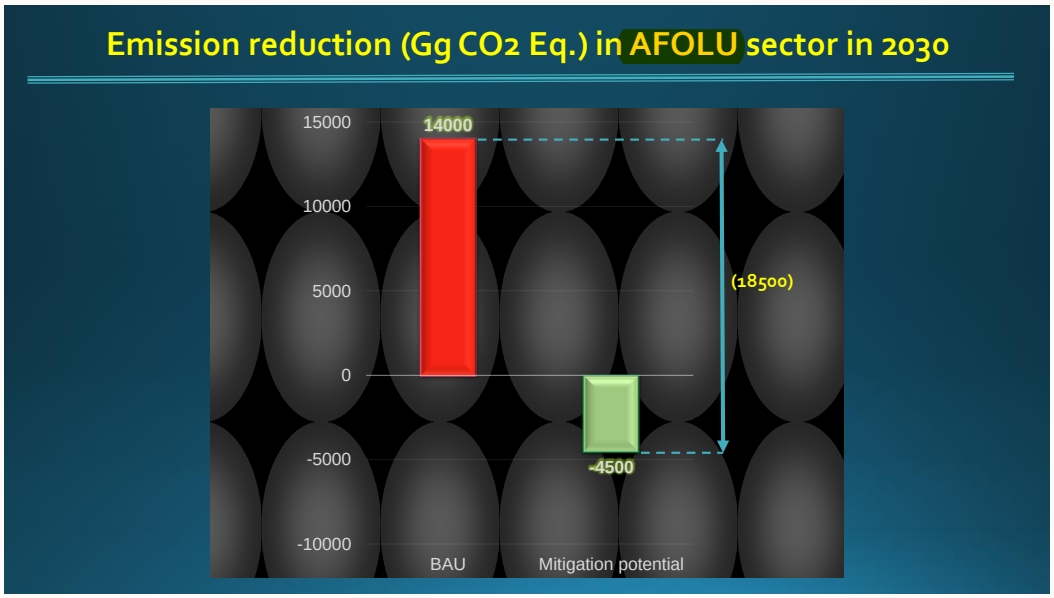
The AFOLU sector is a key category and among the highest emitters. Emissions come from the use of fuelwood, production of charcoal and wood removals for construction and other purposes, especially in the rural areas. The livestock industry is also a major contributor through mainly enteric fermentation but offers restricted mitigation avenues on account of the extensive production system.

Measures evaluated in the AFOLU sector are:

- Increasing the number of livestock heads in feedlots to reduce enteric fermentation by some 4%;
- Reducing N_2O emissions by about 10% through production of biogas from the feedlot manure;
- Reducing chemical fertilizers by 20% through conservation and climate smart agricultural practices, use of organic manure and composts;
- Reducing deforestation rate by 75% in 2030;
- Reforesting 20 000 ha annually as from 2018;
- Implementing agroforestry systems over 5000 ha annually during the commitment period as from 2018;
- Converting 5000 ha of grassland annually as from 2018 to arboriculture up to 2030;
- Reducing wood removal in forests by 50%;
- Combating forest and grassland fires;
- Restoring 15 million ha of grasslands by 2030; and
- Conservation agriculture is practiced over about 80 000 ha by 2030.

These measures if implemented successfully will result in a combined reduction of

emissions and removals of the order of 18 500 Gg CO_2-eq in 2030.

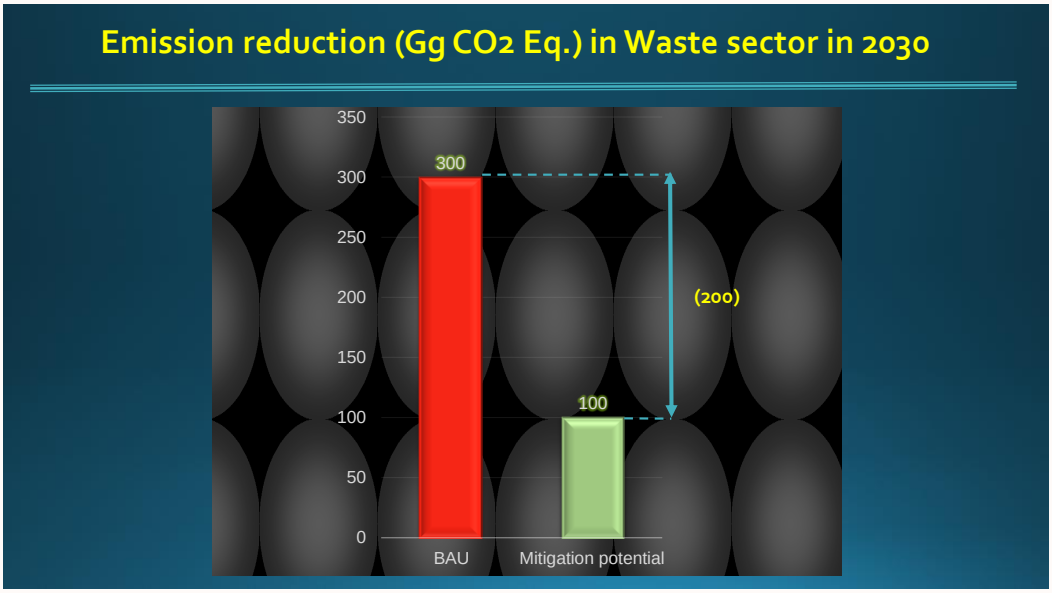


The potential contribution of the different measures in the AFOLU sector is provided in the Table below.

Measure	GHG amount	% of BAU scenario in 2030
Reduce deforestation rate by 75 %	13 537	59.8
Reforest of 20 000 ha per year	1779	7.9
Restore 15 M ha of grassland	1359	6.0
Reduce removal of wood by 50 %	701	3.1
Afforest 5000 ha per year	578	2.6
Plant 5000 ha of arboriculture per year	358	1.6
Fatten 100 000 cattle heads in feedlots	201	0.9
Soil carbon	180	0.8

WASTE

Waste can be valorised through various systems to curb down emissions usually associated with the management practices being used presently. These will be reviewed to reduce emissions from both municipal solid waste and wastewater. It is planned to convert municipal solid waste and sludge from wastewater management systems from the main cities to energy. This measure will lead to a reduction of some 200 Gg CO_2-eq. Additional benefits such as a cleaner environment, better sanitation, with fewer risks for health problems, will be reaped while the treated water can be used for irrigation to alleviate problems linked with water scarcity.



Potential contribution of the different measures in Waste sector are listed below.

Measure	GHG amount	% of BAU scenario in 2030
Transform 50% MSW to electricity and compost	205	0.9

Gases

The direct gases carbon dioxide (CO_2), methane (CH_4) and Nitrous Oxide (N_2O) are covered in this INDC.

Accounting Methodologies

The implementation and outcome of the contribution will be tracked and accounted for on the basis of the national GHG inventories compiled and presented in the National Communications and Biennial Update Reports submitted regularly to the UNFCCC secretariat. The method used for compiling the inventories will be those recommended by IPCC, namely the IPCC 2006 Guidelines and software.

The Global Warming Potentials adopted are from the IPCC Second Assessment Report.

- Carbon Dioxide 1
- Methane 21
- Nitrous Oxide 310

The accounting methods used for the Land sector will consist of tracking land use changes and fires through remote sensing technology, and forest inventories for improving and developing national emission and stock factors. Furthermore, reduction of wood removals, reducing deforestation, reforestation, forest management, preservation of protected areas and reserves, improved pasture management and curtailing of wild fires will be tracked by respective Ministries through the responsible Directorates, and in close collaboration with other institutions and the private sector. Since this sector is being refined, namely the maps for more accurately evaluating changes, Namibia reserves its right to amend this component of its INDC in the future.

Namibia has started to set up a Measuring, Reporting and Verification system and further actions will be taken to strengthen it and make it fully operational within the shortest possible lapse of time. The country also intends to set up a carbon register

	to record the outcome of all development activities linked with emission reductions and removals. The same carbon register will be used for emission offsets and trading on the international market.
Equity and Ambition	Namibia is geared towards a progressive decoupling of GHG emissions from economic growth to match the low carbon pathway embedded in its policies and strategies. Namibia is now taking steps and presenting its contribution to reduce its emissions while also increasing its sinks subject to the conditional provision of the needed resources by the international community. The global goal is to meet the ultimate objective of the Convention namely, *the stabilization of greenhouse gas concentrations in the atmosphere at a level that would prevent dangerous anthropogenic interference with the climate system* and limit global warming to below 2°C and Namibia is willing and strongly committed to contribute its fair share in this global objective. This is so despite the fact that the country is already operating with low emissions compared to the developed countries. Namibia aspires to continue its development for improving the welfare of its population while reducing poverty index, increase food security, eliminate societal inequalities, guarantee access to safe water and health, empower and educate all citizens. Some of the facts provided below give the status of the country within the global context. • Namibia's contribution in Global emissions – 0.059% in 2010 • The country was a net sink over period 2000 to 2010 but the capacity decreased from 18 278 to 1339 Gg CO_2-eq • Net per capita removals decreased from 10 to 0.6 Gg CO_2-eq • Per capita emissions decreased from 0.0146 Gg CO_2-eq to 0.0130 Gg CO_2-eq from 2000 to 2010 • GDP production increased from US$ 198 to 304 per unit emission Moreover, the Government of Namibia has invested in mitigation and sequestration of GHGs for more than a decade unconditionally which is a legitimate proof of the commitment of the country to reduce the global warming threat to humanity. These initiatives contributed to a reduction of some 160 Gg CO_2-eq of its emissions in 2010. Considering this and the above facts, Namibia therefore considers its INDC as fair, equitable, ambitious and adequate, given its development status and national circumstances.
Institutional Arrangements and Planning Process	The reference document for identifying mitigation opportunities was the GHG inventory that provided the necessary information on activities responsible for emissions and removals and the level of these at national level. Those activities contributing most to GHG emissions (IPCC key categories) were prioritised and targeted for action as well as areas such as waste management that has a direct bearing on the quality of the environment and can provide multiple side benefits. Namibia's policy is to practice an open transparent economic development with a wide range of partners. So, wide stakeholder consultation is current practice in the country when it concerns national issues such as mitigation of GHGs which is the cause for global warming and the resulting climate change. Stakeholders included the parliamentarians, ministries, government departments, city councils, the private sector, NGOs, CSOs, the academia and the communities. There has been one on one consultations and group meetings as the situation dictates to end up with national workshops for developing the INDC, validating it and

	buy in the participation of all in its implementation.

Adaptation Contribution

Rationale and process for developing INDCs on adaptation	Namibia is known to be one of the driest countries in sub-Saharan Africa, and is dependent on development sectors highly sensitive to climate. Primary economic sectors which are natural resource based such as agriculture, fisheries and mining account for about one third of the total GDP. Income distribution in Namibia is unusually inequitable. With an estimated Gini coefficient of 0.6 (2015 CIA World Factbook), Namibia has one of the most inequitable income distribution in the world. More than half of the population depends on subsistence agriculture and in drought years, food shortages are a major problem in rural areas. Namibia is therefore potentially one of the most vulnerable countries to climate change. The predicted temperature rise and evaporation increase as well as higher rainfall variability will exacerbate the existing challenges that Namibia is facing as the driest sub Saharan country. The potential effects of these climatic changes could prove catastrophic to the communities, population and economy at large. Thus, adaptation is of prime importance to the country and is high on government's agenda to guarantee the welfare of the people while reducing risks and building resilience. Furthermore, Namibia is host to unique biodiversity within fragile ecosystems and is a biodiversity hotspot. The country's biodiversity stands too high a risk to allow these ecosystems to be destabilized by climate change which will result in the loss of such a precious world heritage. Adaptation is thus an obligation for the country to fulfil its role within the international context. The INDC on adaptation has been developed on the basis of the sectoral strategies, plans, and vulnerability and adaptation assessments to climate change conducted for the country. These assessments have been undertaken to guide policies and strategies, mainstream adaptation to climate change in the development programmes to enable the country adapt while building resilience in the medium to longer term.
Climate change trends, impacts and vulnerabilities	Historical climate data analysis shows an increase of about 0.2°C for every decade. Projections made using dynamical downscaling of 6 and 10 Global Circulation Models (GCM's), indicated increases of the order of 0.6 to 3.8°C for the 2035 - 2065 time period relative to 1961 - 2000. The highest temperature rise is projected to be inland. Historical rainfall data indicate a decreasing trend accompanied by changes in precipitation pattern. Projections for rainfall are more difficult and remain uncertain with a higher probability for a reduction. The most destructive first order climate risks, most evident and experienced in the recent years, are long lasting floods and droughts. These in turn impacted heavily and directly on the population, and indirectly on human activities and resources such as agriculture, livestock, water, the coastal zone, natural ecosystems, biodiversity and health, amongst others. It has been estimated that this could result to an annual decrease of the GDP by some 6.5%. The resulting decline of the GDP will seriously hinder the country's progress while also preventing the empowerment of the poorest segments of the population that are most vulnerable to climate change. Some of the observed impacts to-date that will be exacerbated in the future are:

	• Lower crop yields and risk of crop failure; • Reduced livestock production; • Decline in fish stocks, catch and production; • Reduced water availability and lower water quality, impacting economic development, food security, health and sanitation; • Increased occurrence of water- and vector-borne diseases; • Increased pressure on cities following urbanization; • Increased damage to infrastructure; • Risk of extinction of endemic species and loss of biodiversity; • Loss of ecosystem services (such as medicinal plants and biomass energy); • Loss of soil fertility and increased soil erosion; • Decline in nature-based tourism due to ecosystem degradation; and • Shifts in wildlife distribution.
Long-term and near-term adaptation visions, goals and targets	Namibia is still to prepare its NAP and as such has not yet developed an advanced adaptation strategy and plan. Yet, past experiences of disastrous climate change impacts have obliged government to incorporate climate change adaptation in the development agenda. While the near term vision is prevention and repair, the long term goals and targets are to instil resilience to impacts of climate change in the most vulnerable sectors of the economy. This is a necessity as climate change is a reality in the everyday life of all Namibians. Being complacent will only aggravate the situation, as climate change is here to stay and all will have to live with it in the longer term. Broad avenues for adaptation to climate change in the future will come from: • Improving technical capacity at the national and sub-national levels to develop a greater understanding of climate change and its effects; • Developing and implementing appropriate responses and adaptation strategies to reduce the impacts of floods, low rainfall and high temperatures on people, crops, livestock, infrastructure and services; • Agricultural adaptation strategies could include: coordinating the timing of ploughing and crop planting with rainfall events; using drought-resistant crop varieties and livestock breeds; shifting livestock to alternative grazing areas and; implementing soil and water conservation policies and practices; • Improving ecosystem management, protection and conservation; • Developing common goals and facilitating better integration of different policies and practices in vulnerable sectors; and • Developing policies and programmes that accommodate and encourage new and diverse livelihood options while generating financial capital.
Current and planned adaptation undertakings and support	Adaptation to climate change has been an unconditional part of the national development system since quite some time now as a means to build resilience. It can be anticipatory or reactive, private or public, autonomous or planned. Government has already acted in these directions with a preference for risk reduction and enhancement of resilience, constituting the medium to long term process, as opposed to the reactive approach. Some of the major adaptation actions under way are:

	• Risk reduction to lower the vulnerability of the people and production systems; • Setting up appropriate early warning systems to avoid losses and reduce impacts; • Elimination and control of the invader bush to restore pastureland to their original state; • Promotion of Climate Smart Agriculture and Conservation Agriculture; • Urban and peri-urban agriculture; • The green scheme (establishing of irrigation schemes along the perennial rivers of Namibia for food security); • Promotion of better adapted crop varieties and livestock species; • Biodiversity conservation; • Protection of forests; • Community forest management; • Rationalization of the use of water resources for different economic sectors; • Improved rural water supply; • Recycling of Windhoek's wastewater into potable water; • Artificial recharge of aquifers – 'banking water'; • Surveillance and prevention of diseases; • Protection of the shoreline and beaches; • Dredging of the port of Walvis Bay; and • Surveillance of the lagoon protecting the port of Walvis Bay.
Gaps, Barriers and Needs	Some of the recurrent gaps faced by the country are inadequate human capacity, lack of in-depth vulnerability studies, restricted access to the latest technologies, limited coverage of the country for systematic observation, relatively low awareness of a large segment of the population and, last but not least, insufficient funds to correct the gaps and barriers while enabling the country to embark on adaptation in sectors already strained by climate change. Some of the key barriers are: • Lack of coordination and conflicting programme implementation; • Framing of climate change as an environmental issue; • Lack of access to information; • Lack of effective decentralization and limited institutional capacity at the local level; • Reactive approach versus long-term planning; and • Insufficient evidence based on benefits of adaptation versus costs. In addition to capacity building and technology transfer, Namibia estimates that some US$ 22.6 billion at 2015 prices will be required to implement the a-INDC component successfully.

Means of Implementation

The Cabinet of Namibia is the Government entity responsible for approving policies. The INDC will not be an exception to this rule and after the required technical validation, it will be officially endorsed by Cabinet before submission to the UNFCCC. The Parliamentary Standing Committee on

Economics, Natural Resources and Public Administration which usually advises Cabinet on relevant policy matters will do so for the INDC also. The MET, which is responsible for all environmental issues in the country, is also the National Focal Point to the UNFCCC. It is the coordinating body for all climate change activities through its Climate Change Unit (CCU) of the Directorate of Environmental Affairs. The CCU is supported directly by a formalized multi-sectoral NCCC for the implementation and coordination of sector-specific and cross-sectoral activities while also providing advice and guidance on climate change issues.

Since climate change affects directly or indirectly all socio-economic development sectors, it pays that all Ministries through their various departments, other Organizations and Agencies also actively collaborate and contribute in the implementation of INDC activities at the local, regional and national levels. Existing local and regional structures involved in climate change related activities will similarly form part of the implementation committees at their levels within their areas of jurisdictions.

Hence, this same structure will be adopted for the implementation of activities of the INDC. The National Planning Commission (NPC) which is usually the government institution responsible for monitoring implementation of the development programme can assist in monitoring of activities stemming from the INDC also. This option will ensure that these activities are integrated within the national strategies and plans with the proper feedback to Cabinet. This will also ensure a good follow-up of activities of a cross-cutting nature as well as those having both mitigation and adaptation benefits concurrently. The private sector will be a privileged partner of government for implementing the INDC, either on their own or as funding partners.

Summary of Needs

Implementation of this INDC represents a major challenge to the government of Namibia. Multiple shortcomings and constraints will have to be overcome while fulfilling the needs for systemic, individual and institutional capacity building, access and transfer of the latest environment friendly and clean production technologies, mitigation and adaptation techniques and sufficient financing in a timely manner for smooth and successful implementation of the INDC. It is thus of vital importance that the Green Climate Fund be capitalised rapidly in order to provide the much needed funds to the developing countries to enable them to meet their intended targeted contribution.

Namibia will need the support of the international community to overcome existing barriers, for the appropriation of technologies for both mitigation and adaptation, a sustained capacity building programme in the prioritized areas, technical support and funding to the tune of some 33 billion US$ at 2015 prices. The setting up of an appropriate climate observation system is of prime importance. Research will be essential to develop and project climate change scenarios at higher resolutions for the different regions of the country, enable precise evaluation and development of vulnerability indices for successful adaptation in the different economic sectors, assess and adapt technologies for adoption under the national circumstances and develop indigenous technologies to support resilience building. Key research areas for mitigation are forest inventories for better assessing the loss in sink capacity, refine emissions and removals estimates and the development of national emission and stock factors. Sufficient sustained support for capacity and funding will be needed to implement the NAMAs and NAP once they are finalized.

The implementation spans over the full period of 15 years to 2030 and some of the measures have already been planned. These can be implemented as soon as the enabling environment is created and the necessary appropriate support is made available. Given the urgency for actions to curb down emissions and enhance sinks, it is important that the international community reaches an agreement and sets up the needed framework for providing the required support.

With regards to possible financing possibilities, the government of Namibia tables on the following;

- Part contribution of the government;
- Grants from bilateral and multilateral partners;
- Soft and low interest loans from national, international and partner countries institutions;
- Foreign Direct Investments;
- Independent Private Partners; and
- The Namibian Private sector.

Some of the other prerequisites for a successful and quick implementation of the INDC are:

- Political stability;
- Good governance;
- An independent efficient judicial system;
- Appropriate legislation;
- Provision of incentives; and
- Implementation of robust awareness campaigns.

It is of note that these factors constitute the environment for attracting investors while offering the guarantee and trust to funding agencies. In many cases, legislation can be outdated and can be a serious barrier to implementation of some of the measures of the INDC. In the case of Namibia, there is an urgency to review existing legislation, regulations and norms to frame these in accordance with climate change concerns. There is a need to speed up the process, review and update the following important legislation and/or regulations:

- Feed-in tariffs for the general public and other organisations to supply the grid with electricity;
- Finalize Power Purchase Agreements rapidly following the delivery and signature of IPP licences;
- Implement regulations on energy efficiency, particularly energy audits in the industrial sector that are heavy consumers of energy;
- Implement the DSM strategy and set regulations to ensure import of energy efficient appliances;
- Review the taxation policy and legislation to promote the update of cleaner technologies and promote energy savings;
- Strengthen the enforcement of legislation and regulations;
- Review the legislations regulating forest exploitation to fit them to the new agenda; and
- Implement land policy reforms to promote reforestation and afforestation by the different land owner groups.

Monitoring and Reporting Progress

The National Planning Commission (NPC) spearheads the implementation of the activities and the monitoring of the achievements of the National Development Plans, currently the NDP4. The analysis of economic development activities as dependent variables of recorded climatic parameters will indicate whether climate change is the responsible factor for deviations from set targets. Additionally, data are collected by the various government departments and fed to the National Statistics Agency for regular analysis to help assess progress and achievement of government plans and enable updating of strategies and plans. These analyses will serve as a barometer and support Monitoring and Evaluation (M&E) for identifying vulnerability areas, mitigation activities and other more specific needs. They will also serve as indicators to evaluate progress of both m-INDC and a-INDC initiatives.