



HOMA BAY COUNTY CLIMATE CHANGE POLICY

APRIL 2021

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FOREWORD

The Department responsible for Climate Change affairs has set out to develop this functional policy in order to address myriads of challenges in climate Change. This is to ensure that it discharges its mandate in mainstreaming climate change mitigation and adaptation, and systematic creation of institutional and legal frameworks. In so doing it will effectively addresses issues of climate change actions as a cross cutting activity linked to SGDs.

The policy aims to effectively address all climate change related communal issues while promoting socio economic activities leading to a stable and thriving County.

The policy addresses ways and means by which the County will achieve a satisfying level of tangible and sustainable climate resilience through appropriate planning, budgeting and stakeholder involvement and participation.

We recognize, in this policy the significant ways through which availability or absence of climate change actions may impact on industrial, tourism and transport activities. Given that these activities constitute the whole mark of our County economy, we set out to implement this policy for positive impacts leading to prosperity of our county economy and improved contribution to national economic development. We foresee an annual economic growth rate of up-to 7% within the next five years, a situation to which the environment sector shall be a central player creating a conducive atmosphere for agricultural production systems, fishing industry, recreation and tourism, improved primary health care, among others.

The County is beginning to experience a rapid urbanization phenomenon in its previously laidback rural trading centers. With a steadily increasing human population growth, the demands for proper climate change mainstreaming through deliberate mitigation and adaptation actions is set to increase significantly. This situation may lead to high demand for interventions in environmental management, hence the need for strategic interventions envisaged by this policy, designed to address the cross-sectoral issues on Sanitation, Agriculture, Energy, Transport, Tourism, Lands and Physical Planning, among others

Last but not least, the recommended legal framework of this policy should effectively address mainstreaming of Climate Change actions in the county.

His Excellency

Governor Cyprian Awiti

Homa Bay County

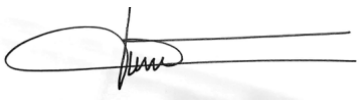
ACKNOWLEDGEMENTS

The County Government of Homa Bay, Department of Water Sanitation Environment and Forestry wish to express its sincere gratitude to the Climate Change Policy preparation secretariat under my leadership of the County Executive Committee Member (CECM) Dickson Nyawinda, Chief Officer Prof Donald Ogwenyo and Director of Water Services Mr. Martin Omulama Mbatia for spearheading the development of the Climate Change Policy. The Policy was developed with the support of Prof. Benard Muok (Lead Consultant) and Director, Directorate of Research, Innovation and Partnership (DRIP) of Jaramogi Oginga Odinga University of Science and Technology (JOOUST).

I wish to express our sincere appreciation to our key partners SUSWATCH Kenya and the Devolution and Climate Change Adaptation (DaCCA) consortium members CREP, Osienala and Umande Trust for their technical and financial support to this process. I appreciate the support and active participation of World Vision Kenya through Re-greening Africa Project.

Further, I wish to thank Kennedy Oyier (Coordinator County Climate Change Secretariat), Dr. Caleb Olweny, Chairman, Department of Plant, Animal and Food Sciences (JOOUST) and Ms. Stacey Atieno (Environment Officer) for organizing and facilitating public participation forums on the Policy.

Finally, I wish to thank different community members and interest groups across the County for their input and views for those who contributed in any way and whom we cannot name, many thanks for your support.



Mr. Dickson Nyawinda

County Executive Committee Member

Water Sanitation Environment Forestry and Climate Change

ABBREVIATIONS AND ACRONYMS

| | |
|-----------------|--|
| AEZ | Agro-Ecological Zones |
| AF | Adaptation Fund |
| AFOLU | Agriculture, Forestry and Other Land Uses |
| BAP | Biodiversity Action Plan |
| CBDR&RC | Common But Differentiated Responsibilities and Respective Capabilities |
| CCCC | County Climate Change Council |
| CCCF | County Climate Change Fund |
| CFA | Community Forest Association |
| CH ₄ | Methane |
| CMDRM | Community managed disaster risk management |
| CO ₂ | Carbon dioxide |
| CSR | Corporate Social Responsibility |
| CSP | County Strategic Plan |
| DaCCA | Devolution and Climate Change Adaptation |
| DNA | Deoxyribonucleic Acid |
| DRR | Disaster Risk Reduction |
| FMNR | Farmer Managed Natural Regeneration |
| GEF | Global Environmental Facility |
| GHG | Greenhouse Gas |

| | |
|------------------|---|
| GIS | Geographic Information System |
| HDI | Human Development Index |
| IPCC | Intergovernmental Panel on Climate Change |
| LVB | Lake Victoria Basin |
| MNB | Multi-Nutrient Blocks |
| N ₂ O | Nitrous Oxide |
| NCCRS | National Climate Change Response Strategy |
| PPPs | Public-Private Partnerships |
| SDGs | Sustainable Development Goals |
| UNFCCC | United Nations Framework Convention on Climate Change |

CHAPTER ONE; INTRODUCTION.

1.1 BACKGROUND INFORMATION

Kenya's economy is dependent on the natural resource base, and thus is highly vulnerable to climate variability and change. Rising temperatures and changing rainfall patterns, resulting in increased frequency and intensity of extreme weather events such as droughts and flooding, threaten the sustainability of the country's development. Among the most vulnerable regions in Kenya is the Lake Victoria Basin. Due to high poverty rates, changing socioeconomic and political circumstances and demographic growth, traditional coping strategies are increasingly becoming insufficient. Further, the increased frequency of extreme events is not allowing the society time to adapt after such shocks. To safeguard sustainable development, the County Government of Homa Bay has developed this Climate Change Policy to provide a clear and concise articulation of overall response priorities to climate variability and change.

This Policy's focus is on the linkages between sustainable development and climate change. Climate change adversely impacts critical sectors that are important to the County economy and society: Environment, Water and Forestry; Agriculture, Livestock and Fisheries; Trade; Energy; Physical Infrastructure; Tourism; and Health. This Policy, therefore, elaborates intervention measures that can help to achieve the goal of low carbon, climate-resilient and therefore sustainable development. The Policy focuses on the three key climate change outcomes: Adaptation, mitigation and a framework for implementation of the climate change actions.

1.2; WHY THE POLICY?

This Policy is developed to facilitate a coordinated, coherent and effective response by the County Government to local and National climate change actions. This policy is intended to ensure the mainstreaming of climate change mitigation and adaptation into development planning, budgeting and implementation in all sectors and levels of the county government in order to enhance the resilience of communities and natural systems, and thus ensure sustainable development.

1.3; CLIMATE CHANGE POLICY AND REGULATORY FRAMEWORK;

The Homa-Bay climate change policy adheres to the international agreements and instruments, as read with the County integrated development plan and is guided by the National Climate Change Act 2016 and the constitution.

CHAPTER TWO: RATIONALE FOR THE POLICY

Climate change is globally acknowledged as one of the most significant development challenges facing humanity today. It is increasingly evident that climate change is affecting the social, economic and human development of our communities. Combating climate change, is therefore, a key development priority if our people are to achieve sustainable livelihoods.

Kenya's climate is already changing with average temperature fluctuations, and variability in rainfall patterns. This is observed by the unpredictability in onset of the long rain season (March, April and May), which is the primary planting season in the County. This has increasingly led to loss of lives, diminished livelihoods, reduced crop and livestock production, and damaged infrastructure, among other adverse impacts.

In Homa-Bay County Climate change is likely to negatively impact the county's contribution towards the achievement of Kenya Vision 2030 (the country's long-term development blueprint) and the Jubilee Government's Big Four agenda for 2018-2022, which focuses on ensuring food, and nutrition security; affordable and decent housing; increased manufacturing and affordable healthcare.

Despite the fact that about 74% of the labour force is employed in agriculture, half of the population of Homa-Bay is food insecure. The overall proportion of households who do not have enough food to meet their household needs throughout the year is 82%. Food insecurity peaks between July and August and between December and March when harvested stocks will usually have been depleted.

Significant 'sudden-onset' natural hazards such as flash floods, epidemics, pest infestations and livestock diseases, as well as headwinds and severe storms, are also threat to residents of the County. Aside from the sudden onset risks, other 'slow-onset' hazards include environmental and land degradation, the consequences of which can be equally disastrous to livelihoods.

This Policy, thus; provides for the development of a comprehensive multi sectorial framework to coordinate the County's effort on climate action.

CHAPTER THREE; SITUATION ANALYSIS

3.1 EVIDENCE OF CLIMATE CHANGE IN HOMA BAY COUNTY

The County's strategic plan identifies population dynamics, environmental degradation, and climate change (amongst others) as key development challenges. Like all the communities around the Lake Victoria Basin (LVB), a large proportion of the County's residents depend on the Lake to support agriculture, fisheries, livestock and other livelihoods. The adverse effects of climate change disproportionately affect marginalized and rural communities, especially women and youth, by reducing the productivity of agriculture and wetlands, the abundance of fish in Lake Victoria and its tributaries, and loss of other ecosystem functions. Climate change is also likely to negatively impact on economic sectors that depend on water resources. Human health is increasingly being compromised by climate change and climate variability. Global warming has altered the ecology of some disease vectors, such as malaria, and consequently, the spatial and temporal transmission of these diseases is now being felt beyond their traditional ranges. Water availability is also a major limiting factor in crop and livestock production. This despite the County's huge potential to irrigate as it borders the largest freshwater lake in Africa, Lake Victoria, as only 13.3% of the land is under irrigation. Thus, addressing environmental degradation, climate change and other socio-economic development challenges are a top priority if the County is to achieve sustainable development.

Recent observations¹ on climate change threats suggests that:

- a. Climate change has severely affected the Lake Victoria Basin (LVB), reflected in deteriorating water quality and quantity, declining fish stocks and loss of biodiversity.
- b. Declining agricultural productivity due to climate change and limited farm in-puts.
- c. Increasing incidences of catastrophic events such as flooding, droughts, and tropical storms; all of which are projected to be more intense, frequent and unpredictable;

¹ A J Koutsouris, et al. (2010). Hydro-climatic trends and water resource management implications based on multi-scale data for the Lake Victoria region, Kenya. *Environ. Res. Lett.* 5 (2010) 034005 (7pp)

- d. Decrease in the already scanty forest cover, due to over utilization and low recovery capacity adversely affecting species diversity and consequent ecosystem services;
- e. Threat to freshwater ecosystems, due to pollution and proliferation of invasive species;
- f. Increased conflicts between upper and lower riparian regions on the sharing of water resources;
- g. Increased climate change-induced migration.
- h. High health risks and prevalence of HIV/AIDS, pandemics and other endemic diseases.

It is therefore critical to identify the vulnerabilities of various sectors to climate change and to put in place appropriate adaptation and mitigation measures.

3.2 STATUS OF CLIMATE CHANGE GOVERNANCE IN HOMA BAY COUNTY

Climate change governance at the national level is well stipulated in the National Climate Change Act 2016. In Homa Bay County, climate change is domiciled in the department of Water Sanitation, Environment and Forestry which has a directorate of Climate change.

3.3 PROGRESS OF CLIMATE CHANGE ADAPTATION IN HOMA BAY COUNTY

Adaptation and mitigation is the priority for Homa-Bay. Homa-Bay's mitigation actions will contribute to the Nationally Determined Contributions (NDCs) under the County Climate Change Action Plan (CCCAP) 2021-2026. This will also deliver co-benefits including sustainable development, green growth and resource use efficiency.

The County and its partners are implementing various projects addressing vulnerability and coping strategies to climate change. These actions range from promotion of climate smart agriculture, green energy technologies in domestic and industrial applications such as solar power for lighting, water pumping etc. The county's sectorial budgets all incorporate various aspects of climate change interventions in agriculture, roads and public works, energy and health.

The designated department for Climate Change has a dedicated budget for Climate Change action, and the directorate coordinates climate change actors and interventions in the county.

3.4 LESSONS LEARNT

Arising from the many programmes and projects implemented in the County and elsewhere, several valuable lessons have been learnt:

1. Building the capacity of key decision-makers at all levels is essential for mainstreaming climate change issues into planning and development frameworks;
2. Capacity building for local institutions and mobilization of the population into a structured producer group will strengthen their roles in negotiations and local decision-making processes;
3. Adequate financing is required to promote large-scale application and replication of the knowledge by target groups;
4. Vulnerable groups need support and follow-up on how to manage and maintain the multifunctional platforms themselves, and on ways to use them most effectively;
5. A partnership approach in the implementation of programs at all levels and sharing resources is more effective in delivering impacts than working in isolation;
6. Links to institutions involved in micro-finance are essential for farmers and communities to access additional resources to scale up the investments made, and further enhance their resilience to climate variability and change.
7. Commercialization of climate change technologies is not only more effective in delivering scale, but also enhances sustainability of actions while also creating livelihood opportunities.

CHAPTER FOUR; POLICY GOAL, OBJECTIVES & GUIDING PRINCIPLES

4.1 POLICY GOAL

The goal of this policy framework is to achieve an industrialized, healthy and wealthy county with adaptive and resilient communities, through sustainable development based on low carbon blue and green economy.

4.2 POLICY OBJECTIVES

The objectives of this Policy are:

1. To mainstream climate change adaptation and mitigation in all county government policies, plans and programs for sustainable development

2. To enhance community and stakeholder capacity to implement climate change adaptation and mitigation measures.
3. To provide a regulatory framework and governance structures for effective implementation of adaptation and mitigation measures.
4. To facilitate research and technology transfer for sustainable use and management of county resources.
5. To establish mechanism for assessing, monitoring and reporting the impacts of climate change programs.
6. To maintain and restore critical ecosystems for environmental stability
7. To facilitate effective mobilization and utilization of financial resources for implementing climate change actions.

4.3; POLICY GUIDING PRINCIPLES

The guiding principles enshrined in the national climate change policy and national climate change Act 2016 will apply.

CHAPTER FIVE; POLICY STATEMENTS

Objective 1. To provide a regulatory framework and governance structures for effective implementation of adaptation and mitigation measures.

For effective implementation of climate change actions at various levels in the county, there is need to establish a proper framework and structures for decision making, planning and prioritization of climate change actions. This is because climate action should be an integral part of all livelihood and development activities, and thus involves a multitude of actors at all levels of society.

Policy statements;

The County Government will;

1. Develop and enact county climate change laws and regulations to ensure effective implementation of climate change actions.
2. Establish climate change governance bodies at the county, sub county, ward and village levels to coordinate climate change adaptation and mitigations actions.

3. Establish a climate change directorate to coordinate, monitor and report on climate change actions and impacts, while also acting as the county's depository for climate change information.

Objective 2; To mainstream climate change adaptation and mitigation in all county government policies, plans and programs for sustainable development.

Climate change is multi-faceted and impacts all sectors of the County economy. To achieve scale and impact therefore climate change actions must be integrated in all county programs. For coordinated actions on climate change and to ensure that all sectors significantly contribute to climate change adaptation and mitigation such actions must be included in all County planning processes. Non state actors must also be incentivized to integrate climate action in their activities.

Policy statement;

The County Government shall

1. Ensure County planning processes (formulation of CIDP, CADPS, and annual budgets) takes into consideration climate change concerns.
2. Build capacity of state and non-state actors to effectively mainstream climate change adaptation and mitigation actions in their programmes.
3. Prioritize climate change activities in the annual County Climate change adaptation plans.
4. To ensure each Environmental Impact Assessment proposal in the county incorporate climate change adaptation and mitigation measures.

Objective 3: To establish mechanism for assessing, monitoring and reporting the impacts of climate change actions.

Climate Change action is implemented by many state and non-state actors in a variety of undertakings. These actions may be coordinated but are frequently implemented independently and their impacts evaluated and reported independently within their entities. Thus information on actions and impacts of the actors are not coordinate, resulting in under reporting. There is therefore the need to develop and implement a comprehensive monitoring and evaluation strategy for climate change actions that bring together information from all actors to synergize efforts.

Policy statements;

The County Government will

1. Develop a multi sectorial platform for reporting on climate change actions/impacts.
2. Prepare and submit annual climate change progress report to county assembly.
3. Adopt use of appropriate technology for reliable data collection, analysis and dissemination.
4. In consultation with climate change actors, promote the development of specific sectorial climate change indicators.
5. Annually organize a forum bringing together state and non state actors to share on their programs and experiences, and bring synergy and leverage to climate actions in the county.

Objective 4: To facilitate research and technology transfer for sustainable use and management of county resources.

Accurate information is critical in planning Climate Change mitigation measures. Collecting and maintaining appropriate information is thus critical to formulating an appropriate response to emerging climate change impacts. At the same time, many technological challenges exist in all sectors that require innovation for impact. Thus

Policy statements;

The County Government will;

1. Identify research and technology needs; and promote strategic and systematic climate change-related research, impact and vulnerability assessments, and technology development and diffusion.
2. Put in place mechanisms to encourage and facilitate locally appropriate climate change technological development, including strategies to enhance and maintain human capacity, especially amongst the youth.
3. Enhance the capacity of the public and private sectors, civil society and research institutions to adopt and transfer of technological innovations.

4. Enhance partnership between County government, academia, private sector, civil society and global climate change innovation institutions.
5. Develop County Greenhouse gases emissions inventory and strengthen institutional capacities to ensure regular local and trans-boundary updates;
5. Promote development of local nature based product value chains with economic potential such as aloe, handicrafts, indigenous fruits, forage trees, ecotourism, honey, livestock, and livestock products etc to diversify livelihoods;
6. Promote adoption of alternative livelihoods for at risk groups and those who practice livelihoods that are destructive to the environment and appropriate technology to facilitate the production of improved quality of products;

Objective 5; To restore and maintain critical Ecosystems for environmental stability.

The Kenya constitution guarantees a clean and healthy environment to all residents, while all economic sectors depend on ecosystem services for their proper function. However, major ecosystems in the county such as agricultural, forestry, riverine, wildlife and lacustrine systems are threatened by diverse economic activities.

Unstable ecosystems threaten land productivity, changes in species composition, reduced forest area, higher flood risks, drought and other potential disasters. Population growth and associated demand for farming, settlement and other economic activities will exacerbate the effects of climate change in the County. Thus the County must undertake aggressive action to ensure that ecosystems are stabilized and continue to provide critical services.

Policy statements;

The County Government will;

1. Develop appropriate legislative for sustainable natural resource management i.e forests, agricultural landscapes, lakes, rivers, mining and quarrying, wildlife and cultural heritage, etc.
2. Promote the adoption of sustainable climate smart agricultural practices and systems including irrigation, tree farming and agroforestry.
3. Adopt and promote technological enhanced and sustainable integrated environmental management systems in both urban and rural landscapes.

4. Develop and implement a comprehensive land use and settlement plan for the county.
5. Promote adoption of green technologies in buildings and settlements.
6. Promote adoption of renewable, sustainable and efficient energy technologies for domestic and industrial use.
7. Develop and implement a comprehensive waste and sanitation management plan and systems.
8. Promote the development and implementation of a comprehensive County water master plan that addresses conservation, distribution and utilization efficiently.
9. Promote development of sustainable plans for urban settlements
10. Enact legislation to drive adoption of climate smart settlements and green building technologies
11. Enact legislation to promote adoption of climate smart standards in infrastructure and that considers expected and unexpected climate hazards;

Objective 6: To facilitate effective mobilization and utilization of financial resources for implementing climate change actions.

Climate finance plays a critical role in building resilience to impacts of climate change and variability. The developed countries have a responsibility to provide climate change financing under the UNFCCC based on the principle of Common but Differentiated Responsibilities, and Respective Capabilities (CBDR&RC) and the financial mechanisms developed within and without the UNFCCC. In the Paris Agreement 2015; the established countries committed to mobilize a flow of USD 100 Billion a year from 2020 going forward.

Transition to a low carbon and climate-resilient development pathways requires significant financial investment in interventions that will reduce Green House Gas (GHG) emissions from key emitting sectors, climate-proof sectors driving the economy and promote human well-being and ecological integrity. It is therefore imperative that the County secures adequate and predictable financial resources from domestic, national and international sources. To secure such funding, the

county must establish an appropriate, efficient, and transparent arrangement for effective and efficient mobilization and utilization of funds for climate action.

Policy statements;

The County Government will;

1. Establish an annual County climate change partnership forum for coordination of adaptation and mitigation actions.
2. Ensure commitment of not less than 5% of the annual county budget to climate change adaptation and mitigation actions.
3. Develop climate change Act and supporting financial regulations to guide mobilization, operation and disbursements for county climate change activities.
4. Establish dedicated, open, and transparent management arrangements for receiving and disbursing finances for climate action.
5. Enact appropriate fiscal and other incentives to promote responsible climate change behaviour among the private sector.
6. Promote the development of an effective county resource mobilization policy and strategy.
7. Promote access to innovative financing arrangements for climate change action, eg. Carbon Markets, Green funding arrangements, and other mechanisms under the UN-REDD program.

Objective 7: To enhance community and stakeholder capacity to implement climate change adaptation and mitigation measures.

Managing the impacts of climate change is challenging given the scale and uncertainty involved, its complex and crosscutting nature, the urgency of required actions that exist between the different actors. Thus the institutional capacity for climate change actions amongst stakeholders is critical for achieving effective adaptation and mitigation

Homa Bay County experiences significant challenges in human resources and institutional capacities for climate change actions thus concerted capacity building of stakeholders is required for climate change actions for community,

Policy statements;

The County Government will;

1. Undertake capacity needs assessments of major stakeholder groups to identify and facilitate development of capacity development plan;
2. Establish climate change resource center to ease access to climate change information and technology by stakeholders.
3. Establish partnerships with relevant institutions and organizations to support appropriate training programs on climate change issues.
4. Roll-out a comprehensive program to meet capacity needs at all levels in coordination with other climate change actors.
5. Strengthen institutional capacity at all levels, particularly within county-level planning and coordination structures ensure multi-sectorial approach in addressing climate change.

5.2. CROSS-CUTTING CONSIDERATIONS

Climate change impacts on communities in different ways. The women, youth, PWDs and other vulnerable groups such the elderly are likely to suffer the most from climate change impacts. Thus it is critical that all climate change actions prioritize the needs of such groups in their programming. Further, climate change will exacerbate conflicts over natural resource use, and it is imperative to anticipate and mitigate these.

Policy Statements

The County will:

- i. Undertake systematic analysis of youth, gender and other at risk groups and their climate change vulnerabilities, through the collection and utilization of gender-disaggregated data, including in relation to budgetary processes.
- ii. Ensure that marginalization and vulnerability arising from gender, age and other risk factors and their disparities are addressed at all stages of climate change response.

- iii. Put in place mechanism to ensure and enhance the participation of the youth, women, PWDs and other vulnerable groups in climate change governance and position them to take advantage of opportunities.
- iv. Strengthen traditional and formal systems of dispute resolution over climate induced hazards and other natural resource use conflicts;
- v. Facilitate access to social protection and insurance mechanisms against sudden and slow onset climate hazards;
- vi. Promote access to enterprise credit and other financing facilities for vulnerable groups at national and county levels such the the Youth, Women, and PWD funding avenues;

CHAPTER SIX; POLICY REVIEW

The Policy will undergo an independent external evaluation after every 5 years. The recommendations resulting from that evaluation will feed into the revision process for the Policy. This revision is to be carried out based on a thorough public consultation process and review of the results then.

DEFINITION OF TERMS

Adaptation means an adjustment in natural or human systems in response to actual or expected climatic stimuli or their effects, which moderates harm or exploits beneficial opportunities.

Adaptive capacity refers to the ability of systems, institutions, humans and other organisms to adjust to potential damage, to take advantage of opportunities, or to respond to consequences (*IPCC, 2014, Fifth Assessment Report (AR5) Glossary*).

The carbon market is a market that is created from the trading of units of GHG emissions. A carbon credit or offset is a financial unit of measurement that represents the removal of a tonne of carbon dioxide equivalent from the atmosphere. Carbon credits are generated by projects that deliver measurable reductions in GHG emissions.

Climate change means a change in the climate system which is caused by significant changes in the concentration of greenhouse gases as a consequence of human activities and which is in addition to natural climate change that has been observed during a considerable period.

Global warming refers to the gradual increase, observed or projected, in global surface temperature, as one of the consequences of climate change.

The primary greenhouse gases that are measured in a GHG inventory are carbon dioxide (CO₂), Methane (CH₄), nitrous oxide (N₂O), perfluorocarbons (PFCs), hydrofluorocarbons (HFCs), sulphur hexafluoride (SF₆) and nitrogen trifluoride (NF₃).

Mitigation means human interventions that seek to prevent or slow down the increase of atmospheric greenhouse gas concentrations by limiting current or future emissions and enhancing potential sinks for greenhouse gases.

REDD+ is the acronym for reducing emissions from deforestation and forest degradation and the role of conservation, sustainable management of forests and enhancement of forest carbon stocks in developing countries. It is a mitigation mechanism that creates a financial value for the carbon stored in forests by avoiding deforestation and increasing the carbon stock in existing forests.

Resilience refers to the capacity of social, economic and environmental systems to cope with a hazardous event or trend or disturbance, responding or reorganizing in ways that maintain their essential function, identity and structure, while also maintaining the capacity for adaptation, learning and transformation (*IPCC, 2014, AR5 Glossary*).

Vulnerability refers to the propensity or predisposition to be adversely affected. Vulnerability encompasses a variety of concepts and elements, including sensitivity or susceptibility to harm and lack of capacity to cope and adapt. (*IPCC, 2014, AR5 Glossary*).

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