



MINISTRY OF  
ENVIRONMENT,  
CLIMATE CHANGE &  
FORESTRY

# Kenya Landscape and Ecosystem Restoration Monitoring Framework

A framework for monitoring, reporting and learning  
on landscape and ecosystem restoration

2025





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# Contents

Foreword	4
Preface	5
Acknowledgements	6
Acronyms	8
Glossary and Definition of Key Terms	10
<b>1. Introduction</b>	<b>13</b>
Background	13
The National Landscape and Ecosystem Restoration Strategy 2023 - 2032	15
A National Landscape and Ecosystem Restoration Monitoring Framework	15
<b>2. Framework Development</b>	<b>16</b>
<b>3. Framework Structure</b>	<b>20</b>
Creating an Adaptable Framework	20
A Quick Guide on the Application of the Restoration Monitoring Framework	21
How to Use the Monitoring Framework	22
<b>4. Existing Restoration Monitoring Systems and Processes</b>	<b>35</b>
<b>5. Roadmap to Operationalising the Framework</b>	<b>36</b>
<b>Annex 1: Existing Restoration Monitoring Systems and Processes</b>	<b>37</b>

# Foreword



Land degradation remains a significant challenge in Kenya, with estimates indicating that up to 38.8 million hectares of our country's land are affected. This ongoing degradation reduces ecosystem functionality and productivity, ultimately diminishing the essential ecosystem goods and services that sustain the national economy and local livelihoods.

In response to this challenge, the government has committed to restoring 10.6 million hectares of degraded landscapes and ecosystems by 2032 through tree growing and sustainable land management practices, with the aim of enhancing ecological functionality, building climate resilience and improving livelihoods. This ambitious target is guided by the National Landscape and Ecosystem Restoration Strategy (2023–2032), which provides a comprehensive framework to coordinate and operationalize restoration efforts across the country. The Strategy adopts a whole-of-government and whole-of-society approach, establishing mechanisms for stakeholder engagement, resource mobilization and partnership building. Achieving the Strategy's goals will also contribute to fulfilling Kenya's national, regional and global commitments—such as the African Forest Landscape Restoration Initiative (AFR100) under the Bonn Challenge, where Kenya has pledged to restore 5.1 million hectares by 2030; the Land Degradation Neutrality (LDN) targets; the Nationally Determined Contributions (NDCs) for climate change, which rely on landscape restoration for both mitigation and adaptation; and key targets under the Convention on Biological Diversity (CBD)'s Kunming-Montreal Global Biodiversity Framework (KMGBF), including Target 2.

This monitoring framework will play a critical role in tracking the implementation progress of the Strategy and broader restoration efforts, capturing results and key lessons as part of an adaptive and iterative management approach.

I encourage all stakeholders involved in landscape and ecosystem restoration across the country to adopt this framework to monitor and report on the progress of their restoration initiatives.

**Dr. Deborah Mlongo Barasa**

Cabinet Secretary,

Ministry of Environment, Climate Change and Forestry



# Preface

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The National Landscape and Ecosystem Restoration Monitoring Framework was developed to support the timely and coordinated monitoring of landscape and ecosystem restoration efforts across the country. It enables systematic tracking, assessment and reporting against Kenya’s restoration-related commitments, specifically those targets set out in the National Landscape and Ecosystem Restoration Strategy (2023–2032)—to help guide and prioritize future investments. It also supports reporting under various international commitments.

Originally developed in 2022 to support the implementation of the Forest and Landscape Restoration Implementation Plan (FOLAREP) 2023–2027, the framework has since been updated to align with the broader goals of the National Landscape and Ecosystem Restoration Strategy (2023–2032) and reporting requirements for AFR 100, the UN Decade on Ecosystem Restoration and the three related Rio Conventions - United Nations Convention to Combat Desertification (UNCCD), United Nations Framework Convention on Climate Change (UNFCCC) and Convention on Biological Diversity (CBD)’s Kunming Montreal (KM) Global Biodiversity Framework – Target 2. Key enhancements include the integration of indicators for monitoring restoration in non-terrestrial ecosystems and gender equality and social inclusion (GESI), aggregation of some indicators and the prioritisation of indicators into a set of core indicators referred to as “Tier 1” indicators.

The framework was developed through a multi-stakeholder consultative process led by the Kenya Landscape Restoration Monitoring Technical Working Group (MTWG). Insights and feedback were gathered through a series of meetings, workshops, county engagement forums and a national validation event. It features a comprehensive set of outcome and process indicators for restoration monitoring and is intended for use by a broad range of stakeholders—including government ministries and Semi-Autonomous Government Agencies (SAGAs), county governments, private sector actors, civil society organizations, grassroots groups and individuals engaged in restoration work across Kenya.

It is my hope that this framework serves as a valuable tool for monitoring and reporting restoration progress, learning from our progress and improving future targeting and investments and that it contributes meaningfully to the realization of Kenya’s restoration goals.



**Mr. Gitonga Mugambi, CBS**

Principal Secretary,

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Ministry of Environment, Climate Change and Forestry

# Acknowledgements



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Members of the MTWG include: George Tarus - Secretary of Forest Development, State Department of Forestry, Ministry of Environment, Climate Change and Forestry (MoECCF) (Chair), Susan Boit - Coordinator, 15B Tree Growing Programme Secretariat, State Department of Forestry, Ministry of Environment, Climate Change and Forestry (MoECCF) (alternate chair), Rose Akombo - 15B Tree Growing and Restoration Secretariat (MoECCF), Mieke Bourne Ochieng – Stakeholder Engagement with Evidence Hub Lead, (CIFOR - ICRAF), Catherine Muthuri – Kenya Country Director (CIFOR - ICRAF), Patrick Mugi - Monitoring and Evaluation Specialist (FAO), Brian Muthoka – Technical Lead Natural Resources Management Committee (COG), Veronica Wanyora - Programme Officer, Natural Resources Management Committee (COG), Peter Ndunda - Senior Associate, AFR100, Global Restoration Initiative (WRI), Lawrence Eric Ng'ang'a - AFR100 Restoration Monitoring Associate (WRI), Ngatia Gerald – Secretary (NACOFA), Daniel Muteti - Head Ecosystem and Land Management (KWS), Joseph Njue - Regional Geospatial Information and ROAM Officer (IUCN), Jared Amwatta - Chief Research Scientist, Forest Restoration, Biodiversity Conservation and Climate Change (KEFRI), Elijah Korir - National Forest Programme Coordinator (WWF Kenya), David Golicha - Assistant Director, Environment and Natural Resource Systems (KALRO).

The contributions of former MTWG members are acknowledged including: Peterson Kamau - Deputy Director, PP&SI (MoECCF), Susan Chomba – Director of Vital Landscapes for Africa (WRI), Stephen Kibet - Assistant Director Ecosystem Research and Monitoring (KWTA), Winnie Musila – Director of Research, Planning, and Audit (KWTA), Francis Nyambariga - Deputy Director, Land Reclamation (MoALFC), Charles Lange - Deputy Director for Environmental Planning and Research Coordination (NEMA), Kiunga Kareko - National Forest Programme Manager and FLR Projects lead (WWF Kenya), and Jane Francescha Wamboi – Head of Ecosystems and Landscapes Management Program (KWS).

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**Mr George Tarus**

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The development of the monitoring framework through a multi-stakeholder consultative process.  
(Photos: Ann Wavinya, Caroline Njoki/ICRAF)



# Acronyms

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<b>AFR100</b>	African Forest and Landscape Restoration Initiative
<b>ARLI</b>	African Resilient Landscapes Initiative
<b>A/R</b>	Afforestation and Reforestation
<b>AURORA</b>	Assessment, Understanding and Reporting of Restoration Actions
<b>AWF</b>	African Wildlife Foundation
<b>BHC</b>	British High Commission
<b>CBD</b>	Convention on Biological Diversity
<b>CBOs</b>	Community Based Organisations
<b>CDCs</b>	Counties Determined Contributions
<b>CECs</b>	County Environment Committees
<b>CECM</b>	County Executive Committee Member
<b>CEO</b>	Chief Executive Officer
<b>CIDPs</b>	County Integrated Development Plans
<b>CIFOR- ICRAF</b>	Center for International Forestry Research & World Agroforestry
<b>COG</b>	Council of Governors
<b>DRSRS</b>	Directorate of Resource Surveys and Remote Sensing
<b>ESG</b>	Environmental, Social and Governance
<b>FAO</b>	Food and Agriculture Organisation of the United Nations
<b>FERM</b>	Framework for Ecosystem Restoration Monitoring
<b>FIMIS</b>	Forest Integrated Management Information System
<b>FLLoCA</b>	Financing Locally Led Climate Action
<b>FLR</b>	Forest and Landscape Restoration
<b>FMNR</b>	Farmer Managed Natural Regeneration
<b>FOLAREP</b>	Forest and Landscape Restoration Implementation Plan
<b>FRELs</b>	Forest Reference Emission Levels
<b>GDP</b>	Gross Domestic Product
<b>GESI</b>	Gender Equality and Social Inclusion
<b>GHGs</b>	Greenhouse Gases
<b>IPBES</b>	Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services
<b>IUCN</b>	International Union for the Conservation of Nature
<b>JAXA</b>	Japan Aerospace Exploration Agency
<b>JICA</b>	Japan International Cooperation Agency
<b>JJ- FAST</b>	JICA-JAXA Forest Early Warning System in the Tropics
<b>KALRO</b>	Kenya Agricultural and Livestock Research Organization
<b>KEFRI</b>	Kenya Forestry Research Institute
<b>KFS</b>	Kenya Forest Service

<b>KM GBF</b>	Kunming Montreal Global Biodiversity Framework
<b>KMD</b>	Kenya Meteorological Department
<b>KNBS</b>	Kenya National Bureau of Statistics
<b>KWS</b>	Kenya Wildlife Service
<b>KTWA</b>	Kenya Water Towers Agency
<b>LDN</b>	Land Degradation Neutrality
<b>LSDF</b>	Land Degradation Surveillance Framework
<b>MDAs</b>	Ministries, Departments and Agencies
<b>MEAs</b>	Multilateral Environmental Agreements
<b>MOECCF</b>	Ministry of Environment, Climate Change and Forestry
<b>MTWG</b>	Landscape Restoration Monitoring Technical Working Group
<b>MRV</b>	Measurement, Reporting and Verification
<b>NACOFA</b>	National Alliance of Community Forest Associations
<b>NBSAP</b>	National Biodiversity Strategy and Action Plan
<b>NCCAP</b>	National Climate Change Action Plan
<b>NEMA</b>	National Environment Management Authority
<b>NETFUND</b>	National Environment Trust Fund
<b>NCHM</b>	National Clearing House Mechanism
<b>NDCs</b>	Nationally Determined Contributions
<b>NDVI</b>	Normalized Difference Vegetation Index
<b>NFMS</b>	National Forest Monitoring System
<b>NRTFAS</b>	Near Real Time Forest Alert System
<b>PELIS</b>	Plantation Establishment for Livelihood Improvement systems
<b>PS</b>	Principal Secretary
<b>SAGAS</b>	Semi-Autonomous Government Agencies
<b>SD ECC</b>	State Department of Environment and Climate Change
<b>SDF</b>	State Department of Forestry
<b>SDGs</b>	Sustainable Development Goals
<b>SEPAL</b>	System for Earth Observations, Data access, Processing, Analysis for Land Monitoring
<b>SOC</b>	Soil Organic Carbon
<b>SODA</b>	State of Devolution Address
<b>RCMRD</b>	Regional Centre for Mapping of Resources for Development
<b>RCoE - ESA</b>	Regional Centre of Excellence for Biodiversity, Forests and Seascapes from Eastern and Southern Africa
<b>REDD+</b>	Reducing Emissions from Deforestation and Forest degradation in developing countries
<b>TEER</b>	The Economics of Ecosystem Restoration Framework
<b>TIMPS</b>	Technologies, Innovations and Management Practices
<b>TSS</b>	Total Suspended Solids
<b>UNCCD</b>	United Nations Convention to Combat Desertification
<b>UNFCCC</b>	United Nations Framework Convention on Climate Change
<b>WRI</b>	World Resources Institute
<b>WWF</b>	Worldwide Fund for Nature
<b>VCD</b>	Value Chain Development

An aerial photograph of a lush green forest with a network diagram overlaid on the left side. The diagram consists of several white circular nodes connected by thin white lines, forming a complex web. The forest is dense with various shades of green, and a dirt path is visible winding through it. The number '10' is visible in the top left corner of the image.

# Glossary and Definition of Key Terms

**Note:** The definitions are aligned with international definitions where national definitions are not available and may need to be adapted as new national definitions are determined.

**Afforestation:** Establishment of forest through planting and/or deliberate seeding on land that, until then, was under a different land use; implies a transformation of land use form non-forest to forest<sup>1</sup>

**Agroforestry:** A dynamic, ecologically based, natural resource management system that, through the integration of trees in farms and rangeland, diversifies and sustains smallholder production for increased social, economic and environmental benefits<sup>2</sup>

**Biodiversity:** The variability among living organisms from all sources, including inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystems<sup>3</sup>

**Carbon sequestration:** The process of removing carbon from the atmosphere and depositing it in a reservoir, such as the soil or trees<sup>4</sup>

**Climate:** The average characteristics of meteorological conditions, calculated over a long period (typically 30 years or more)<sup>5</sup>

**Climate change:** Refers to a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods<sup>6</sup>

**Deforestation:** The conversion of forest to other land use, whether human-induced or not<sup>7</sup>

**Ecosystem:** A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit<sup>8</sup>

**Ecosystem services:** The benefits provided by ecosystems. These include provisioning services such as food, water, timber, fiber and genetic resources; regulating services such as the regulation of climate, floods, disease and water quality as well as waste treatment; cultural services such as recreation, aesthetic enjoyment and spiritual fulfilment; and supporting services such as soil formation, pollination and nutrient cycling<sup>9</sup>

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- 1 FAO (2020) Global Forest Resources Assessment 2020: Terms and Definitions. Rome. Available at <https://www.google.com/url?q=https://www.fao.org/3/I8661EN/i8661en.pdf&sa=D&source=docs&ust=1744454842705223&usg=AOvVaw1Gz5XccorGb7A-COjxs5hp>
  - 2 Ministry of Environment, Climate Change and Forestry. 2023. Draft National Agroforestry Strategy, 2023 - 2032. Available at <https://environment.go.ke/wp-content/uploads/2024/09/Draft-National-Agroforestry-Strategy-2023-2032.pdf>
  - 3 Convention on Biological Diversity. (1992). Text of the Convention on Biological Diversity. Article 2. Available at <https://www.cbd.int/convention/articles/default.shtml?a=cbd-02>
  - 4 Ministry of Environment, Climate Change and Forestry. 2023. Draft National Agroforestry Strategy, 2023 - 2032. Available at <https://environment.go.ke/wp-content/uploads/2024/09/Draft-National-Agroforestry-Strategy-2023-2032.pdf>
  - 5 C. Jost, N. Ferdous, T. D. Spicer, 2014. Gender and Inclusion Toolbox: Participatory Research in Climate Change and Agriculture. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), CARE International and the World Agroforestry Centre (ICRAF). Copenhagen, Denmark. Available online at: [www.ccafs.cgiar.org](http://www.ccafs.cgiar.org)
  - 6 IPBES (2018): The IPBES assessment report on land degradation and restoration. Montanarella, L., Scholes, R., and Brainich, A. (eds.). Secretariat of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, Bonn, Germany. 744 pages.
  - 7 FAO (2020) Global Forest Resources Assessment 2020: Terms and Definitions. Rome. Available at <https://www.google.com/url?q=https://www.fao.org/3/I8661EN/i8661en.pdf&sa=D&source=docs&ust=1744454842705223&usg=AOvVaw1Gz5XccorGb7A-COjxs5hp>
  - 8 IPBES (2018): The IPBES assessment report on land degradation and restoration. Montanarella, L., Scholes, R., and Brainich, A. (eds.). Secretariat of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, Bonn, Germany. 744 pages.
  - 9 Millennium Ecosystem Assessment. Ecosystems and Human Well-being: Synthesis. Washington, DC: Island Press, 2005. Available at <https://www.millenniumassessment.org/documents/document.356.aspx.pdf>

**Ecosystem restoration:** This is the process of halting and reversing degradation, resulting in improved ecosystem services and recovered biodiversity. Ecosystem restoration encompasses a wide continuum of practices, depending on local conditions and societal choice<sup>10,11</sup>

**Ecological restoration:** Broadly defined as the process of assisting in the recovery of an ecosystem that has been damaged, degraded or destroyed. It differs from other ecosystem restoration activities in that it aims to recover a natural ecosystem or landscape to the condition it would be in had degradation not occurred; while allowing for environmental change (such as increases in temperature or variation in precipitation patterns caused by climate change). Ecological restoration seeks to recover biodiversity and ecosystem integrity, while delivering ecosystem services and ensuring human well-being. The conservation and restoration of biodiversity is a primary outcome<sup>12</sup>

**Forest:** Kenyan forests are defined as land spanning more than 0.5 hectares with trees of at least 2 meters and a minimum canopy cover of 15% and include natural and planted plantation forests on state, community and private land<sup>13</sup>

**Forest cover:** The ratio of forested land against a geographical unit's total land area. It is used to indicate the extent of forests in a jurisdiction<sup>14</sup>

**Forest and landscape restoration:** An active, long-term process that aims to regain ecological functionality and enhance human well-being in deforested or degraded landscapes<sup>15</sup>

**Gender:** A social construct that defines what it means to be a man or woman, boy or girl in a given society – it carries specific roles, status and expectations within households, communities and culture<sup>16</sup>

**Gender equality:** The equal enjoyment by women, girls, boys and men of rights, opportunities, resources and rewards. Equality does not mean that women and men are the same but that their enjoyment of rights, opportunities and life changes are not governed or limited by whether they were born female or male<sup>17</sup>

**Land restoration:** The process of avoiding, reducing and reversing land degradation to recover the biodiversity and ecosystem services that sustain all life on Earth. Land restoration refers to a regenerative process along a continuum of land and water management practices adapted to local conditions and societal choices – applied to conserve natural areas, sustainably manage production landscapes, such as agriculture and forestry and recover past ecological integrity<sup>18</sup>.

**Land cover:** The observed (bio)physical cover on the earth's surface<sup>19</sup>

**Land Degradation Neutrality (LDN):** This term is defined by the UNCCD as “a state whereby the amount and quality of land resources necessary to support ecosystem functions and services to biodiversity at the centre of their restoration practices, in both natural and semi-natural ecosystems<sup>20</sup>

**Land degradation:** The reduction or loss of biological and economic productivity of land and its constituents: soil, water and biodiversity<sup>21</sup>

**Land use:** Social and economic purposes for which land, including water, is managed<sup>22</sup>

**Land use change:** A change in the use or management of land by humans, which may lead to a change in land cover<sup>23</sup>

10 FAO, SCBD & SER. 2024. Delivering restoration outcomes for biodiversity and human well-being – Resource guide to Target 2 of the Kunming-Montreal Global Biodiversity Framework. Rome, Montreal, Canada and Washington, DC. Available at <https://doi.org/10.4060/cd2925en>

11 United Nations Environment Programme (2021). Becoming #GenerationRestoration: Ecosystem restoration for people, nature and climate. Nairobi. Available at <https://openknowledge.fao.org/server/api/core/bitstreams/4e57915f-a5a3-4867-a771-57cceb36230b/content>

12 FAO, SCBD & SER. 2024. Delivering restoration outcomes for biodiversity and human well-being – Resource guide to Target 2 of the Kunming-Montreal Global Biodiversity Framework. Rome, Montreal, Canada and Washington, DC. Available at <https://doi.org/10.4060/cd2925en>

13 Ministry of Environment and Natural Resources (MENR). 2016. Assessment of national forest and landscape restoration opportunities: Kenya technical report. Available at [https://trees.org/wp-content/uploads/2024/01/Kenya\\_Technical-Report\\_Assessment-of-National-Forest-and-Landscape-Restoration-Opportunities\\_2016-1.pdf](https://trees.org/wp-content/uploads/2024/01/Kenya_Technical-Report_Assessment-of-National-Forest-and-Landscape-Restoration-Opportunities_2016-1.pdf)

14 Wang, S. (2003). Forest cover, environmental quality, and economic well-being: Are they related? Paper presented at the XII World Forestry Congress, Québec City, Canada. Food and Agriculture Organization of the United Nations. Available at: <https://www.fao.org/4/XII/0597-C5.htm>

15 <https://www.forestlandscaperestoration.org/> Jost, N. Ferdous, T. D. Spicer, 2014. Gender and Inclusion Toolbox: Participatory Research in Climate Change and Agriculture. CGIAR

16 Research Program on Climate Change, Agriculture and Food Security (CCAFS), CARE International and the World Agroforestry Centre (ICRAF). Copenhagen, Denmark. Available online at: [www.ccafs.cgiar.org](http://www.ccafs.cgiar.org)

17 Jost, N. Ferdous, T. D. Spicer, 2014. Gender and Inclusion Toolbox: Participatory Research in Climate Change and Agriculture. CGIAR Research Program on Climate Change, Agriculture and Food Security (CCAFS), CARE International and the World Agroforestry Centre (ICRAF). Copenhagen, Denmark. Available online at: [www.ccafs.cgiar.org](http://www.ccafs.cgiar.org)

18 United Nations Convention to Combat Desertification, 2022. The Global Land Outlook, second edition. UNCCD, Bonn. Available at [https://www.unccd.int/sites/default/files/2022-04/UNCCD\\_GLO2\\_low-res\\_2.pdf](https://www.unccd.int/sites/default/files/2022-04/UNCCD_GLO2_low-res_2.pdf)

19 Jansen, Louisa & Di Gregorio, Antonio. (2000). Land Cover Classification System (LCCS): Classification Concepts and User Manual. Available at [https://www.researchgate.net/publication/229839605\\_Land\\_Cover\\_Classification\\_System\\_LCCS\\_Classification\\_Concepts\\_and\\_User\\_Manual?utm\\_source=chatgpt.com](https://www.researchgate.net/publication/229839605_Land_Cover_Classification_System_LCCS_Classification_Concepts_and_User_Manual?utm_source=chatgpt.com)

20 UN Convention to Combat Desertification, (n.d.) Land Degradation Neutrality. UNCCD, Bonn. Available at <https://www.unccd.int/land-and-life/land-degradation-neutrality/overview>

21 United Nations Convention to Combat Desertification, 2022. The Global Land Outlook, second edition. UNCCD, Bonn. Available at [https://www.unccd.int/sites/default/files/2022-04/UNCCD\\_GLO2\\_low-res\\_2.pdf](https://www.unccd.int/sites/default/files/2022-04/UNCCD_GLO2_low-res_2.pdf)

22 NEMA (2011) Integrated National Landuse Guidelines. Available at <https://www.nema.go.ke/images/Docs/Guidelines/national%20landuse%20guidelines-nema.pdf>

23 IPBES (2018): The IPBES assessment report on land degradation and restoration. Montanarella, L., Scholes, R. and Brainich, A. (eds.). Secretariat of the Intergovernmental Science-Policy Platform on Biodiversity and Ecosystem Services, Bonn, Germany. 744 pages.

**Landscapes:** Social-ecological system that consists of a mosaic of natural and/or human-modified ecosystems<sup>24</sup> that exchange organisms, energy, water and nutrients<sup>25</sup>

**Monitoring:** A process to assess progress toward specific goals that the restoration effort plans to achieve<sup>26</sup>

**Natural capital:** The stock of natural assets or resources from which humans derive a wide range of goods and services and that sustain all life on earth, often called ecosystem services<sup>27</sup>

**Reforestation:** Re-establishment of forest through planting and/or deliberate seeding on land classified as forest<sup>28</sup>

**Rehabilitation:** Rehabilitation entails management actions that reinstate attributes of some physical properties (e.g. soils, water) and a level of ecosystem functioning on degraded or transformed sites, along with a renewed and ongoing provision of a level of ecosystem services. Native biodiversity and ecosystem integrity are supported but actions do not achieve substantive recovery of a natural ecosystem<sup>29</sup>

**Restoration:** Long-term process of regaining ecological functions and enhancing human well-being in degraded landscapes. This process may or may not result in the reestablishment of the original vegetation<sup>30</sup>

**Social inclusion:** The process of improving the ability, access, dignity and opportunity of people who have been disadvantaged based on their social identity, to take part in society. This process requires changing systems and challenging norms<sup>31</sup>

**Stakeholders:** Any group or individual who can affect or is affected by the achievement of the organisation's objectives<sup>32</sup>

**Sustainable land management:** Encompassing local practices related to agricultural production or ecosystem restoration, as well as land-based policies and investments. It enables various societal needs, including food, health and shelter, to be met within the safe operating space of the Earth system<sup>33</sup>

**Tree:** A woody perennial plant of at least 2 meters in height with one or several stems having a definite crown. This grouping includes bamboos, palms, fruit trees and excludes nonperennial, non-woody species such as bananas, tall shrubs or climbers<sup>34</sup>

**Tree canopy cover:** Area covered by tree patches of less than 0.5 hectares, outside recorded forest areas<sup>35</sup>

**Value chain:** The entire system of production, processing and marketing of a product, from inception through to the finished product to waste disposal<sup>36</sup>

**Value chain development:** Focuses on deliberate efforts to create and strengthen win-win relationships between two or more chain actors aiming to result in win-win outcomes that can sustain the relationships over time. In addition, at the heart of value chain development (VCD), are efforts to strengthen mutually beneficial linkages among value chain actors so that they work together to take advantage of market opportunities<sup>37</sup>

24 Ministry of Environment and Natural Resources (MENR) (2016). Assessment of national forest and landscape restoration opportunities: Kenya technical report. Available at [https://trees.org/wp-content/uploads/2024/01/Kenya\\_Technical-Report\\_Assessment-of-National-Forest-and-Landscape-Restoration-Opportunities\\_2016-1.pdf](https://trees.org/wp-content/uploads/2024/01/Kenya_Technical-Report_Assessment-of-National-Forest-and-Landscape-Restoration-Opportunities_2016-1.pdf)

25 Gann et al. (2019). International principles and standards for the practice of ecological restoration. Second edition. Society for Ecological Restoration (SER). Available at <https://onlinelibrary.wiley.com/doi/pdfdirect/10.1111/rec.13035>

26 Gann et al. (2019). International principles and standards for the practice of ecological restoration. Second edition. Society for Ecological Restoration (SER). Available at <https://onlinelibrary.wiley.com/doi/pdfdirect/10.1111/rec.13035>

27 United Nations Convention to Combat Desertification, 2022. The Global Land Outlook, second edition. UNCCD, Bonn. Available at [https://www.unccd.int/sites/default/files/2022-04/UNCCD\\_GLO2\\_low-res\\_2.pdf](https://www.unccd.int/sites/default/files/2022-04/UNCCD_GLO2_low-res_2.pdf)

28 FAO (2020) Global Forest Resources Assessment 2020: Terms and Definitions. Rome. Available at <https://www.google.com/url?q=https://www.fao.org/3/I8661EN/i8661en.pdf&sa=D&source=docs&ust=1744454842705223&usg=AOvVaw1Gz5XccorGb7A-COjxs5hp>

29 FAO, SCBD & SER. 2024. Delivering restoration outcomes for biodiversity and human well-being – Resource guide to Target 2 of the Kunming-Montreal Global Biodiversity Framework. Rome, Montreal, Canada and Washington, DC. Available at <https://doi.org/10.4060/cd2925en>

30 Tomalka, J., Hunecke, C., Murken, L., Heckmann, T., Cronauer, C., Becker, R., Collignon, Q., Collins-Sowah, P., Crawford, M., Gloy, N., Hampf, A., Lotze-Campen, H., Malevolti, G., Maskell, G., Müller, C., Popp, A., Vodounhessi, M., Gornott, C., Rockström, J. (2024). Stepping back from the precipice: Transforming land management to stay within planetary boundaries. Potsdam, Germany: Potsdam Institute for Climate Impact Research. DOI: <https://doi.org/10.48485/pik.2024.018>. [https://www.unccd.int/sites/default/files/2024-11/PIK%20SRL\\_Full%20Report\\_Web.pdf](https://www.unccd.int/sites/default/files/2024-11/PIK%20SRL_Full%20Report_Web.pdf)

31 Inclusive Futures. (2023). Gender Equality and Social Inclusion (GESI) Analysis Final Report. Available at <https://inclusivefutures.org/wp-content/uploads/2023/03/GESI-analysis-Final-Report.pdf>

32 Freeman, R. E. 1984. Strategic management: A stakeholder approach. Boston: Pitman

33 Tomalka, J., Hunecke, C., Murken, L., Heckmann, T., Cronauer, C., Becker, R., Collignon, Q., Collins-Sowah, P., Crawford, M., Gloy, N., Hampf, A., Lotze-Campen, H., Malevolti, G., Maskell, G., Müller, C., Popp, A., Vodounhessi, M., Gornott, C., Rockström, J. (2024). Stepping back from the precipice: Transforming land management to stay within planetary boundaries. Potsdam, Germany: Potsdam Institute for Climate Impact Research. DOI: <https://doi.org/10.48485/pik.2024.018>. [https://www.unccd.int/sites/default/files/2024-11/PIK%20SRL\\_Full%20Report\\_Web.pdf](https://www.unccd.int/sites/default/files/2024-11/PIK%20SRL_Full%20Report_Web.pdf)

34 KFS (2013) National Forest Resource Mapping and Capacity Development for the Republic of Kenya. Forest Preservation Programme, Report No. KEF09/11494/01. Nairobi: Kenya Forest Service

35 Kenya Forest Service (2021) National Forest Resources Assessment Report.

36 Ministry of Environment, Climate Change and Forestry. 2023. Draft National Agroforestry Strategy, 2023 - 2032. Available at <https://environment.go.ke/wp-content/uploads/2024/09/Draft-National-Agroforestry-Strategy-2023-2032.pdf>

37 Ministry of Environment, Climate Change and Forestry. 2023. Draft National Agroforestry Strategy, 2023 - 2032. Available at <https://environment.go.ke/wp-content/uploads/2024/09/Draft-National-Agroforestry-Strategy-2023-2032.pdf>

# 1 Introduction

## Background

Landscape degradation is a significant global challenge, with estimates indicating that between 20% and 40% of the global land area is already degraded or undergoing degradation<sup>38</sup>. This figure continues to rise, with approximately 100 million hectares affected every year<sup>39</sup>, driven by climate change, population growth, unsustainable agricultural practices and consumption patterns<sup>40</sup>. Climate change and land degradation are mutually reinforcing - land degradation contributes to climate change while climate change worsens its impacts and reduces the viability of some land restoration and rehabilitation options<sup>41</sup>. Similarly, non-terrestrial ecosystems are also experiencing alarming rates of degradation and loss. For example, wetlands are estimated to have declined by 64% to 71% globally during the 20th century<sup>42</sup>, while the total global mangrove area decreased by approximately 284,000 hectares in the between 2000 and 2020<sup>43</sup>.

38 United Nations Convention to Combat Desertification, 2022. The Global Land Outlook, second edition. UNCCD, Bonn. Available at [https://www.unccd.int/sites/default/files/2022-04/UNCCD\\_GLO2\\_low-res\\_2.pdf](https://www.unccd.int/sites/default/files/2022-04/UNCCD_GLO2_low-res_2.pdf)

39 Tomalka, J., Hunecke, C., Murken, L., Heckmann, T., Cronauer, C., Becker, R., Collignon, Q., Collins-Sowah, P., Crawford, M., Gloy, N., Hampf, A., Lotze-Campen, H., Malevolti, G., Maskell, G., Müller, C., Popp, A., Vodounhessi, M., Gornott, C., Rockström, J. (2024). Stepping back from the precipice: Transforming land management to stay within planetary boundaries. Potsdam, Germany: Potsdam Institute for Climate Impact Research. Available at <https://doi.org/10.48485/pik.2024.018>

40 IPBES (2018): Summary for policymakers of the assessment report on land degradation and restoration of the Intergovernmental SciencePolicy Platform on Biodiversity and Ecosystem Services. R. Scholes, L. Montanarella, A. Brainich, N. Barger, B. ten Brink, M. Cantele, B. Erasmus, J. Fisher, T. Gardner, T. G. Holland, F. Kohler, J. S. Kotiaho, G. Von Maltitz, G. Nangendo, R. Pandit, J. Parrotta, M. D. Potts, S. Prince, M. Sankaran and L. Willems (eds.). IPBES secretariat, Bonn, Germany. 44 pages. Available at [https://files.ipbes.net/ipbes-web-prod-public-files/spm\\_3bi\\_ldr\\_digital.pdf](https://files.ipbes.net/ipbes-web-prod-public-files/spm_3bi_ldr_digital.pdf)

41 IPBES (2018): Summary for policymakers of the assessment report on land degradation and restoration of the Intergovernmental SciencePolicy Platform on Biodiversity and Ecosystem Services. R. Scholes, L. Montanarella, A. Brainich, N. Barger, B. ten Brink, M. Cantele, B. Erasmus, J. Fisher, T. Gardner, T. G. Holland, F. Kohler, J. S. Kotiaho, G. Von Maltitz, G. Nangendo, R. Pandit, J. Parrotta, M. D. Potts, S. Prince, M. Sankaran and L. Willems (eds.). IPBES secretariat, Bonn, Germany. 44 pages. Available at [https://files.ipbes.net/ipbes-web-prod-public-files/spm\\_3bi\\_ldr\\_digital.pdf](https://files.ipbes.net/ipbes-web-prod-public-files/spm_3bi_ldr_digital.pdf)

42 Gardner, R.C., Barchiesi, S., Beltrame, C., Finlayson, C.M., Galewski, T., Harrison, I., Paganini, M., Perennou, C., Pritchard, D.E., Rosenqvist, A., and Walpole, M. 2015. State of the World's Wetlands and their Services to People: A compilation of recent analyses. Ramsar Briefing Note no. 7. Gland, Switzerland: Ramsar Convention Secretariat. Available at [https://www.ramsar.org/sites/default/files/documents/library/strp19\\_4\\_bn7\\_e.pdf](https://www.ramsar.org/sites/default/files/documents/library/strp19_4_bn7_e.pdf)

43 FAO. 2023. The world's mangroves 2000–2020. Rome. Available at <https://doi.org/10.4060/cc7044en>

Landscape degradation has far-reaching negative impacts. For example, it adversely impacts the well-being of an estimated 3.2 billion people worldwide, affecting their livelihoods, food and water security, health and safety<sup>44</sup>. The poor, marginalised and those living in arid and semi-arid lands (ASALs) are particularly vulnerable to land degradation given their reliance on natural resources. On the economic front, 10% of the annual global gross product is lost due to biodiversity loss and the loss of vital ecosystem services<sup>45</sup>. The estimated costs associated with the loss of ecosystem services globally due to land degradation ranges between USD 6.3 and 10.6 trillion annually<sup>46</sup>. In addition, the degradation of wetlands results in an estimated USD 20 trillion in annual losses, primarily due to the decline in ecosystem services<sup>47</sup>. Mangrove degradation and loss alone contributes to annual economic losses estimated at between USD 6 billion and USD 42 billion<sup>48</sup>. In Kenya, around 38.8 million hectares of land is degraded<sup>49,50,51</sup>, with more than 30 percent severely degraded<sup>52</sup>. Cost to the Kenyan economy is at least 3 percent of GDP annually (estimated around USD 390 million)<sup>53</sup>.

In response to the massive challenges resulting from landscape degradation, countries worldwide have committed to landscape restoration through various global and regional initiatives such as the UN Decade on Ecosystem Restoration (2021-2030), aimed at preventing, halting and reversing the degradation of

ecosystems worldwide and the Bonn Challenge. To that end, Kenya has pledged to restore 5.1 million hectares of degraded land by 2030 as part of the Bonn Challenge and its regional African Forest Landscape Restoration Initiative (AFR100) initiative for Africa. At the national level, the government has set an ambitious target to restore 10.6 million hectares of degraded landscapes and ecosystems by 2032, through planting 15 billion trees, thereby increasing tree cover to 30%. This goal is guided by the National Landscape and Ecosystem Restoration Strategy (2023-2032). The government has also committed to reducing greenhouse gas emissions by 32 per cent by 2030, as part of the updated Nationally Determined Contribution (NDC) under the Paris Agreement. Kenya has also made other relevant restoration commitments aligned to various multilateral environmental agreements (MEAs), treaties, strategies and commitments that its party and signatory to such as the submission of their revised National Biodiversity Strategy and Action Plan (NBSAP) Target 2, to the Convention on Biological Diversity (CBD) and the United Nations Convention to Combat Desertification (UNCCD) linked to land degradation neutrality (LDN) goals, 2030 Agenda for Sustainable Development (SDG); RAMSAR Convention on Wetlands; New York Declaration on Forests; United Nations Strategic Plan for Forests 2017-2030; Glasgow Declaration on Forests and Land use, amongst others<sup>54</sup>.

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- 44 Besseau P, Graham S, and Christophersen T. eds. 2018. Restoring forests and landscapes: the key to a sustainable future. Vienna, Austria: Global Partnership on Forest and Landscape Restoration. Available at [https://afr100.org/sites/default/files/2023-08/GPFLR\\_FINAL%2027Aug\\_0.pdf](https://afr100.org/sites/default/files/2023-08/GPFLR_FINAL%2027Aug_0.pdf)
- 45 IPBES (2018): Summary for policymakers of the assessment report on land degradation and restoration of the Intergovernmental SciencePolicy Platform on Biodiversity and Ecosystem Services. R. Scholes, L. Montanarella, A. Brainich, N. Barger, B. ten Brink, M. Cantele, B. Erasmus, J. Fisher, T. Gardner, T. G. Holland, F. Kohler, J. S. Kotiaho, G. Von Maltitz, G. Nangendo, R. Pandit, J. Parrotta, M. D. Potts, S. Prince, M. Sankaran and L. Willemsen (eds.). IPBES secretariat, Bonn, Germany. 44 pages. Available at [https://files.ipbes.net/ipbes-web-prod-public-files/spm\\_3bi\\_ldr\\_digital.pdf](https://files.ipbes.net/ipbes-web-prod-public-files/spm_3bi_ldr_digital.pdf)
- 46 Tomalka, J., Hunecke, C., Murken, L., Heckmann, T., Cronauer, C., Becker, R., Collignon, Q., Collins-Sowah, P., Crawford, M., Gloy, N., Hampf, A., Lotze-Campen, H., Malevolti, G., Maskell, G., Müller, C., Popp, A., Vodounhessi, M., Gornott, C., Rockström, J. (2024). Stepping back from the precipice: Transforming land management to stay within planetary boundaries. Potsdam, Germany: Potsdam Institute for Climate Impact Research. Available at <https://doi.org/10.48485/pik.2024.018>
- 47 Gardner, R.C., Barchiesi, S., Beltrame, C., Finlayson, C.M., Galewski, T., Harrison, I., Paganini, M., Perennou, C., Pritchard, D.E., Rosenqvist, A., and Walpole, M. 2015. State of the World's Wetlands and their Services to People: A compilation of recent analyses. Ramsar Briefing Note no. 7. Gland, Switzerland: Ramsar Convention Secretariat. Available at [https://www.ramsar.org/sites/default/files/documents/library/strp19\\_4\\_bn7\\_e.pdf](https://www.ramsar.org/sites/default/files/documents/library/strp19_4_bn7_e.pdf)
- 48 United Nations Environment Programme. (2014). Destruction of carbon-rich mangroves costs up to US\$42 billion in economic damages annually. Available at <https://www.unep.org/news-and-stories/press-release/destruction-carbon-rich-mangroves-costs-us42-billion-economic>
- 49 Ministry of Environment and Natural Resources (MENR) (2016). Assessment of national forest and landscape restoration opportunities: Kenya technical report. Available at [https://trees.org/wp-content/uploads/2024/01/Kenya\\_Technical-Report\\_Assessment-of-National-Forest-and-Landscape-Restoration-Opportunities\\_2016-1.pdf](https://trees.org/wp-content/uploads/2024/01/Kenya_Technical-Report_Assessment-of-National-Forest-and-Landscape-Restoration-Opportunities_2016-1.pdf)
- 50 Ministry of Environment, Climate Change and Forestry (MECC&F) (2023). National Landscape and Ecosystem Restoration Strategy. Nairobi: Government of Kenya. Available at [https://drive.google.com/file/d/1l8nMEkGb1kG4\\_vbRvKVE6-wlNplNHA5U/view](https://drive.google.com/file/d/1l8nMEkGb1kG4_vbRvKVE6-wlNplNHA5U/view)
- 51 Kenya Forest Service (KFS). 2024. Forest Status Report 2024, Kenya. Available at <https://www.kenyaforestservice.org/national-forest-resources-assessment-report-2024-kenya/>
- 52 Mulinge W. et al. (2016) Economics of Land Degradation and Improvement in Kenya. In: Nkonya E., Mirzabaev A., von Braun J. (eds) Economics of Land Degradation and Improvement – A Global Assessment for Sustainable Development. Springer, Cham. Available at [https://link.springer.com/chapter/10.1007/978-3-319-19168-3\\_16](https://link.springer.com/chapter/10.1007/978-3-319-19168-3_16)
- 53 Mulinge W. et al. (2016) Economics of Land Degradation and Improvement in Kenya. In: Nkonya E., Mirzabaev A., von Braun J. (eds) Economics of Land Degradation and Improvement – A Global Assessment for Sustainable Development. Springer, Cham. Available at [https://link.springer.com/chapter/10.1007/978-3-319-19168-3\\_16](https://link.springer.com/chapter/10.1007/978-3-319-19168-3_16)
- 54 Ministry of Environment, Climate Change and Forestry (MECC&F) (2023). National Landscape and Ecosystem Restoration Strategy. Nairobi: Government of Kenya. Available at [https://drive.google.com/file/d/1l8nMEkGb1kG4\\_vbRvKVE6-wlNplNHA5U/view](https://drive.google.com/file/d/1l8nMEkGb1kG4_vbRvKVE6-wlNplNHA5U/view)

# The National Landscape and Ecosystem Restoration Strategy 2023 - 2032

The National Landscape and Ecosystem Restoration Strategy (2023 - 2032) is a 10-year plan to restore 10.6 million hectares of degraded landscapes and ecosystems in Kenya through tree growing and sustainable land management practices for improved ecological functionality, resilience to climate change and better livelihoods by 2032. Its implementation

will contribute to increasing tree cover to 30% by growing 15 billion trees, improving biodiversity conservation, environmental sustainability, socio-economic development and helping Kenya achieve its commitments to regional and global Conventions by 2032.

## A National Landscape and Ecosystem Restoration Monitoring Framework

A persistent challenge in reporting on the implementation of the National Landscape and Ecosystem Restoration Strategy (2023-2032), the National Biodiversity Strategy and Action Plan (NBSAP), Land Degradation Neutrality (LDN) and other restoration commitments in Kenya is the lack of a consistent and coherent monitoring framework for landscape restoration. Without agreement on common indicators, measurement tools, methodologies, reporting processes and institutional arrangements, it remains difficult to reliably track progress, assess outcomes, derive lessons and continuously improve and adapt restoration interventions.

To address this, the National Landscape and Ecosystem Restoration Strategy proposes the creation of an interoperable monitoring and reporting framework to track all restoration efforts in Kenya: the Kenya Landscape and Ecosystem Restoration Monitoring Framework.

Engagement with diverse stakeholders in the co-design and development of a landscape and ecosystem restoration monitoring framework has underscored its importance, for the following reasons:

The need for a coordinated restoration monitoring framework to track progress made in the achievement of restoration targets and goals by all relevant actors across sub-national, national, regional and international levels. The framework should enable all actors,

including the government, to assess the success or failure of restoration initiatives and to identify barriers that require further support to accelerate action.

At the national level, the restoration monitoring framework supports government efforts to robustly report against a multitude of international and regional commitments in a coordinated manner; and enable development partners to quantify the impact of their investments and provide the sector with a reliable measure of their restoration investments.

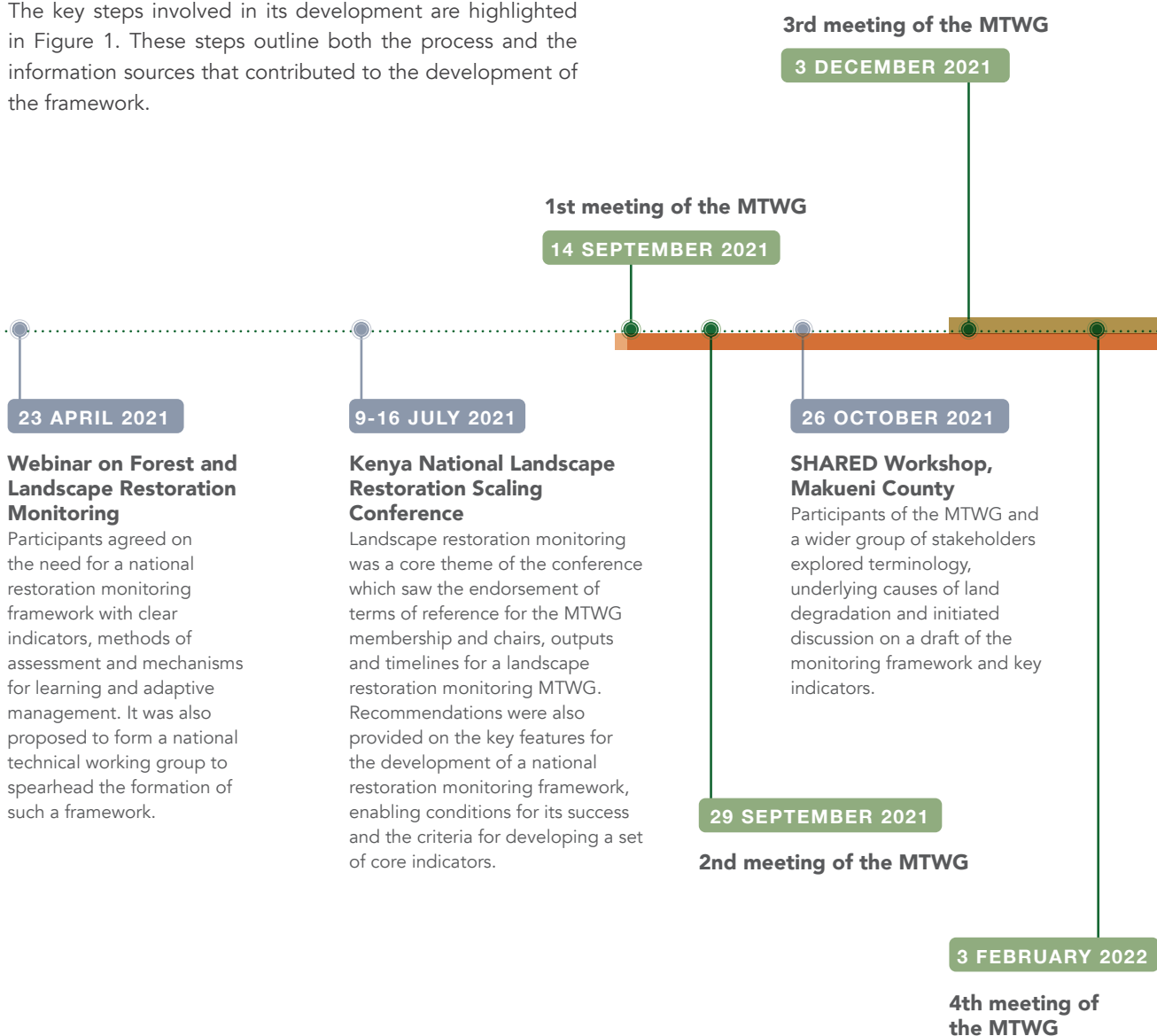
This document is intended for all stakeholders working on or supporting landscape and ecosystem restoration in Kenya. Stakeholders include the government at multiple levels, Ministries, Departments and Agencies (MDAs), civil society actors, including non-governmental organisations, research and academia, intergovernmental organisations, development partners, the private sector and community-based organisations (CBOs). The document describes the co design and development process of the Kenya Landscape and Ecosystem Restoration Monitoring Framework, it showcases the restoration monitoring indicators framework along with guidance on their use, provides information on existing restoration monitoring systems/platforms and processes that can be leveraged for collecting restoration data and outlines next steps to operationalise the framework.



# 2 Framework Development

The Kenya Landscape and Ecosystem Restoration Monitoring Framework was developed through a consultative process led by the members of the Kenya Landscape Restoration Monitoring Technical Working Group (MTWG).

The key steps involved in its development are highlighted in Figure 1. These steps outline both the process and the information sources that contributed to the development of the framework.



**FIGURE 1:** Timeline of the major steps in the process of developing of the Kenya Landscape and Ecosystem Restoration Monitoring Framework

## DECEMBER 2021–MARCH 2022

**County Consultations**

Seven engagement forums brought together national government, all 47 counties, the Council of Governors (COG) and development partners to **review drivers of degradation and barriers to restoration, top indicators for restoration monitoring and County Environment Committees (CECs)**, which are the proposed structures for mainstreaming forest and landscape restoration at the county level. A synthesis report of the engagements was produced.<sup>55</sup>

The **top five indicators crucial for a national restoration monitoring system in Kenya** as noted by counties were:

- Area of forest and forest land restored.
- Number of existing plans, policies, strategies, regulations reviewed and developed.
- Area of degraded agricultural lands restored.

- Area of landscapes under improved management to benefit biodiversity.
- Trends in population accessing adequate quantities of safe water in urban/peri-urban areas.

It was noted during the consultations that CECs are active in only 18 of the 47 counties. Further, 25 of 47 counties mentioned that county climate change entities are critical to enhancing the CECs' Forest and Landscape Restoration (FLR) functions. This indicates that all counties have distinct FLR monitoring structures, including CECs, monitoring and evaluation committees and units. This distinction arises from a unique clustering and nomenclature of county departments, which highlights the importance of harmonized departments to allow for easier implementation and monitoring of FLR.

**5th meeting of the MTWG**

15 MARCH 2022

24-25 MARCH 2022

**Restoration Barometer Meeting**

A rapid stocktake of Kenya's restoration progress under the Restoration barometer tool, used to assess Bonn Challenge pledges, was assessed by many members of the MTWG and other relevant stakeholders.

17-18 MAY 2022

**Capacity Building Workshop on Restoration Monitoring Tools**

The meeting selected restoration monitoring tools and assessed their availability, ease of use, training and capacity needs and accuracy. The draft monitoring framework was reviewed and updated during this event.

7-8 JULY 2022

**National Validation Workshop**

To validate the monitoring framework, the validation workshop gathered relevant stakeholders to provide final feedback on the county engagement synthesis report, FOLAREP and the national restoration monitoring framework. Additional sub-indicators and refinement of the monitoring framework took place. The next steps and way forward for landscape restoration monitoring were also agreed upon during the workshop.

29 JULY 2022

**6th meeting of the MTWG**

## 14 SEPTEMBER 2021-29 JULY 2022

**Six meetings of the MTWG**

The MTWG was officially formed by the Principal Secretary of the Ministry of Environment and Forestry to **develop a monitoring framework in support of restoration tracking, assessment and reflective learning**. The MTWG held a total of 6 meetings from September 2021 to July 2022, through which the monitoring framework was developed.

The key considerations of the MTWG when developing the indicator framework can be summarised as follows:

- Considered drivers of degradation, inputs in terms of activities, outcomes and national and international commitments.
- Based on a specific set of criteria i.e., indicators must be relevant, accurate, time-bound and cost-effective/measurable.
- Grouped indicators under relevant categories.
- Separated indicators into those that could be measured now and later, given the capacity, spatial and temporal scales of the indicator.

55 Muthuri C, Odhiambo E, Akombo R, Kamau PM, Wanyora V, Mugi P, Wanjira EO, Muga M, Njoki C, Bourne M. 2022. A trends analysis on forest and landscape restoration in Kenya. Nairobi, Kenya: World Agroforestry

2023

**Development of the National Landscape and Ecosystem Restoration Strategy (2023 -2032)**

The Strategy was developed through a multi-sectoral and multi-stakeholder approach. This involved a desk review, focus group discussions, key informant interviews, two stakeholder workshops and two drafting meetings. Afterwards, a harmonised draft was presented to the 15 Billion Tree Growing Programme Secretariat for finalisation. The amended harmonised draft was then presented to the Cabinet Secretary, Principal Secretary (PS) State Department of Forestry (SDF), Principal Secretary (PS) State Department of Environment and Climate Change (SD ECC) and CEOs/senior leadership of Semi-Autonomous Government Agencies (SAGAS) of the MECCF for feedback. The feedback received was used to finalise the strategy.

**Launch of the Mission15B#JazaMiti Initiative**

H.E. President William Ruto launched Kenya’s ambitious initiative to plant 15 billion trees by 2032 - Mission15B#JazaMiti Initiative - which intends to increase tree cover from 17.4% to 30% by 2032.

21 DECEMBER 2022

2023

2024

MAY TO JUNE 2024

**(Re) formulation of the Kenya Landscape Restoration Monitoring Technical Working Group (MTWG)**

The MTWG was reformulated to support the implementation of the National Landscape and Ecosystem Restoration Strategy, 2023 – 2032 with a focus on monitoring. The MTWG’s updated TORs are:

- Review and update the indicators in the Kenya Forest and Landscape Restoration Monitoring Framework to ensure alignment with the National Landscape and Ecosystem Restoration Strategy 2023–2032 (particularly to ensure inclusion of indicators for monitoring restoration across non-terrestrial ecosystems, gender equality and social inclusion (GESI) integration; and reporting requirements for AFR 100, the UN Decade on Ecosystem Restoration and under the three related Rio conventions - United Nations Convention to Combat Desertification (UNCCD), United Nations Framework Convention on Climate Change (UNFCCC) and Convention on Biological Diversity (CBD)’s Kunming Montreal (KM) Global Biodiversity Framework – Target 2.
- Map out national and subnational restoration monitoring platforms across ecosystems and provide a summary highlighting the data currently collected and the identified data gaps.
- Provide guidance on annual reporting under prioritised indicators in the framework on an ongoing basis, as well as guidance on monitoring across various sectoral strategies at county and national levels in alignment with the National Landscape and Ecosystem Restoration Strategy, 2023 – 2032, based on demand.
- Support the co-design and operationalisation of a national restoration platform, the development of a data management/reporting platform/dashboard that will capture, analyse and report restoration-related data, starting with county pilots (Makueni and Taita Taveta) and exploring the necessity at the national level.
- Oversee capacity-building activities for key stakeholders on reporting on monitoring indicators and platforms (dashboards) at the county and national levels.

### 1st Meeting of the reformulated MTWG

The participants agreed on updated TORs, including how they can be simplified, membership, the need to update the monitoring framework to align with the National Landscape and Ecosystem Restoration Strategy, 2023 -2032 and provided input on the upcoming national level workshop on ecosystem restoration monitoring and reporting. counties and the next steps.

### National Level Workshop on Ecosystem Restoration Monitoring and Reporting Workshop

Participants, who included the MTWG members:

- Reviewed the existing restoration monitoring framework and ensured it was fit for purpose, its harmonisation with the climate change, biodiversity and forestry indicator frameworks and consideration of all ecosystem types and that indicators are responsive to achieving gender equity and social inclusion (GESI) goals,
- Discussed and agreed on options and steps to operationalise the monitoring and reporting framework; identified platforms for reporting, analysis and access to monitoring data and the existing gaps and needs and
- Agreed on how to link national-level reporting with

### 3rd Meeting of the MTWG

MTWG members finalised the framework and agreed on the criteria for prioritising the indicators. They also discussed operationalisation in terms of needs and requirements, next steps and roles. This included discussions about existing systems for restoration monitoring, such as the COG Monitoring Platform, KEFRI's Landscape Restoration Knowledge Platform and the WRI Terra Dashboard, among others. A key outcome of the meeting was an agreement on the next steps, which included refining the indicators based on feedback, developing a draft roadmap for operationalising the framework, mapping existing systems and processes for landscape restoration and the MTWG members reflecting on their potential roles in operationalising the monitoring framework.

12 JULY 2024

15 JULY 2024

7 NOVEMBER 2024

22-25 JULY 2024

16 OCTOBER 2024

18-19 NOVEMBER 2024

### Training Workshop on Data Use, Monitoring and Reporting in Taita Taveta and Makueni Counties, respectively -

Local capacity development workshops that focused on understanding use cases for restoration data collected in the counties. The county-level Forest and Landscape Restoration Implementation Plans (FOLAREPs) monitoring indicators were also reviewed to examine their alignment with the national-level ecosystem restoration monitoring framework and opportunities for alignment were identified. Processes for linking restoration data flows to the national level were also identified, including the Financing Locally Led Climate Action (FLLoCA) and State of Devolution Address (SODA) reporting processes.

### 2nd Meeting of the MTWG

MTWG members reviewed the updated framework and discussed the next steps for finalisation and its operationalisation.

### Online sessions for Makueni and Taita Taveta counties

Participants were taken through summaries of key insights emerging from the Training Workshops on Data Use, Monitoring and Reporting outcomes. They discussed areas of support in linking FOLAREP and national monitoring and reporting and agreed on next steps that included the need to develop monitoring templates and leverage the State of Devolution Address (SODA) reporting.

# 3 Framework Structure

## Creating an Adaptable Framework

The monitoring framework was developed as a flexible and adaptable framework, which acknowledges and accounts for differences in capacity to monitor restoration changes over time and space.

Given the temporal lag in achieving some restoration impacts, the framework aims to capture both effort (process) and outcomes indicators - which are specific and measurable changes to ecosystems, landscape, society or individuals due to project interventions and are indicative of medium-term restoration impacts.

The framework outlines key restoration information that projects, initiatives and institutions should collect and track. Under each category, a list of proposed indicators have been identified; these have been further delineated to identify a set of 'core' indicators (referred to as Tier 1 indicators) that should be collected by all

restoration actors or projects, supported by additional indicators (Tier 2), which are seen as important but which retain additional complexity and outcomes that may not be practical for all restoration actors to report on. Thus, the framework is adaptable as it collects a core set of indicators (Tier 1) that can be aggregated to the national level, while also including a set of optional indicators which are more granular in nature. These indicators showcase additional outcomes of restoration activities and should be collected by those actors who have the capacity and means. This allows for a phased approach to data collection for monitoring and reporting using the indicators in the framework.

It is anticipated that the framework will remain dynamic, undergoing continual updates and evolving to meet emerging needs and reporting requirements of national restoration policies and global commitments.

### PROCESS INDICATOR CATEGORIES



Project/Initiative Information



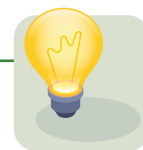
Investment in restoration



Policy, advocacy and coordination



Value chains



Communication and knowledge

### OUTCOME INDICATOR CATEGORIES



Ecosystem health



Tree cover and type



Socio-economic restoration benefits



Capacity



Biodiversity



Climate change (adaptation/resilience and mitigation)

## A Quick Guide on the Application of the Restoration Monitoring Framework



The monitoring framework currently comprises **86 indicators across 11 categories**, as detailed in Tables 1 and 2. These indicators are categorised into two main indicator types - process or outcome indicators:

- **Process indicators:** Indicators used to measure activities, steps or processes to implement a restoration programme, project or intervention, providing insight into how it's being executed. These indicators monitor how restoration is being carried out and whether it is progressing as planned. They are useful for short - and medium-term monitoring.
- **Outcome indicators:** Indicators used to track measurable performance of a project, programme or intervention efforts and changes in conditions in an ecosystem, landscape, society or individual that result from an intervention(s) in the medium term. These measure the results or impacts of results directly attributed to restoration interventions.

The framework currently has **five process indicator categories and 6 outcome indicator categories**.

**The indicators have been further categorised into two tiers based on priority:**

- **Tier 1 indicators** are those that all stakeholders should use when reporting on their restoration initiatives, projects, or interventions if they are able.
- **Tier 2 indicators** are additional indicators that can be reported on if the resources (time, funding and personnel) are available as well as indicators that may be measured more

effectively at the sub-national or national levels. Some of these indicators may be challenging to collect across the whole country and may initially be collected at a smaller scale.

**The indicator tables are comprised of five columns:**

- **Category** – The broad thematic area under which restoration progress is being tracked. Grouping related indicators into categories makes it easier for organisations and analysis. For ecosystem health and the climate change categories, sub-categories are used to provide further clarity.
- **Tier** – as outlined above the tier indicates if it is an indicator or set of indicators that all stakeholders should try and collect or if resources are available.
- **Indicator** – A measurable variable used to represent change or the attainment of a goal<sup>56</sup>. It represents a specific aspect of progress being measured within a category. Indicators define what needs to be assessed to determine success or change.
- **Metrics** – Discrete measures—variables that can be measured at defined intervals to determine the change in status of the indicator. They are the actual units of measurement or data types used to assess indicators and define how the progress will be quantified or described.
- **Frequency** – How often the data or information on the indicator should be collected and reported, ensuring consistency and comparability over time.

<sup>56</sup> Gann et al. 2019. International principles and standards for the practice of ecological restoration. Second edition. Society for Ecological Restoration (SER). <https://onlinelibrary.wiley.com/doi/pdfdirect/10.1111/rec.13035>

## How to Use the Monitoring Framework

Restoration practitioners, organisations and institutions involved in implementing or funding restoration interventions are encouraged to adopt this monitoring framework as a central tool for sharing critical project information and tracking progress.



**Start with Process Indicators:** Restoration practitioners, organisations and institutions should begin by reporting critical project information using process indicators before moving to outcome indicators.



**Define Key Indicators:** Identify the essential variables that will be tracked over time to gauge restoration outcomes.



**Establish Baseline for Outcome Indicators:** Determine the baseline state for outcome indicators before implementing restoration interventions.



**Monitor Outcome Indicators:** Regularly track these indicators at frequencies that reflect their significance and sensitivity to assess the progress or impacts of restoration efforts. The frequency of monitoring will vary depending on the selected indicators.



**Develop Data Collection Methods:** Design and implement standardised methods for collecting data on both process and outcome indicators to ensure consistency and reliability.



**Train Personnel:** Provide training for all personnel involved in data collection and monitoring to ensure they understand the framework and can accurately report information.



**Utilise Technology:** Incorporate technology such as remote sensing, GIS and mobile applications to facilitate efficient and accurate data collection and analysis.



**Analyse Data:** Regularly analyse collected data to identify trends, assess progress and make informed decisions about restoration strategies.



**Report Findings:** Share findings with stakeholders through regular reports, presentations and publications to maintain transparency and accountability.



**Adjust Strategies:** Use the insights gained from monitoring to adapt and refine restoration strategies to improve outcomes.



**Engage Community:** Involve local communities in the monitoring process to ensure their perspectives and knowledge are integrated into the restoration efforts.

**TABLE 1.** Process indicators: Indicators used to measure activities, steps or processes to implement a restoration programme, project or intervention, providing insight into how it's being executed.



**CATEGORY 1**  
**PROJECT/INITIATIVE INFORMATION**

Tier	Indicator	Metrics	Frequency	Description/Comments
1	1 Project or initiative name	Title of the restoration project or initiative	At project initiation, reviewed annually as project activities progress.	<p>The indicators in this category aim to collect data on the background details of restoration projects, programmes and interventions.</p> <p>Note: Each restoration project or initiative should be reported separately to prevent double counting. A unique project identity will be assigned to each program or initiative for record keeping.</p> <p>Where possible, geospatial information, in either point or polygon form, should be provided to verify the location of the restoration intervention site.</p> <p>Project or initiative name and location are not indicators as much as key information necessary to arrange metrics under.</p> <p>Ecosystem type(s) categories are derived from the National Landscape and Ecosystem Restoration Strategy, 2023 -2032. The corresponding UN Decade on Ecosystem Restoration typology is included in brackets.</p> <p>Restoration type(s)/ intervention areas derived from the National Landscape and Ecosystem Restoration Strategy, 2023 -2032</p> <p>Invasive species management is to be outlined in each category.</p>
	2 Project or initiative location(s)	Geospatial polygon, GPS coordinates, location to ward or village (may be multiple sites)		
	3 Area/length under restoration	<p>Square kilometres/hectares for area under restoration</p> <p>Kilometres or meters for length under restoration</p> <p>Combined hectares/square kilometres or kilometres/meters under restoration in case of multiple sites</p>		
	4 Project or initiative restoration objectives	List of objectives		
	5 Ecosystem type from national typology	<p>List</p> <ul style="list-style-type: none"> <li>• Forests (forests)</li> <li>• Agroecosystems (farmlands)</li> <li>• Rangelands (grasslands)</li> <li>• Wetlands (freshwater)</li> <li>• Oceans/Marine (ocean and coasts)</li> <li>• Water Towers (mountains)</li> <li>• Settlement and Infrastructure (urban)</li> </ul>		
	6 Restoration type from the national typology	<p>List</p> <ul style="list-style-type: none"> <li>• Rehabilitation of degraded dryland landscapes, Rehabilitation of degraded natural forests in gazetted forests and water towers</li> <li>• Rehabilitation of degraded water towers, wetlands and riparian areas outside forests</li> <li>• Greening of infrastructure (roads, railway lines, dams)</li> <li>• Grow trees on farms and in agroforestry</li> <li>• Establishment of commercial private forests</li> <li>• Establishment of bamboo woodlots and plantations</li> <li>• Rehabilitation of degraded mangrove and marine ecosystems</li> <li>• Growing of fruit trees and woodlots in schools, colleges and universities and other institutions</li> <li>• Restocking of forest plantation in gazetted forests</li> <li>• Establishment of Urban forests, arboretums, green spaces and roadside planting in wards and sub-counties</li> </ul>		



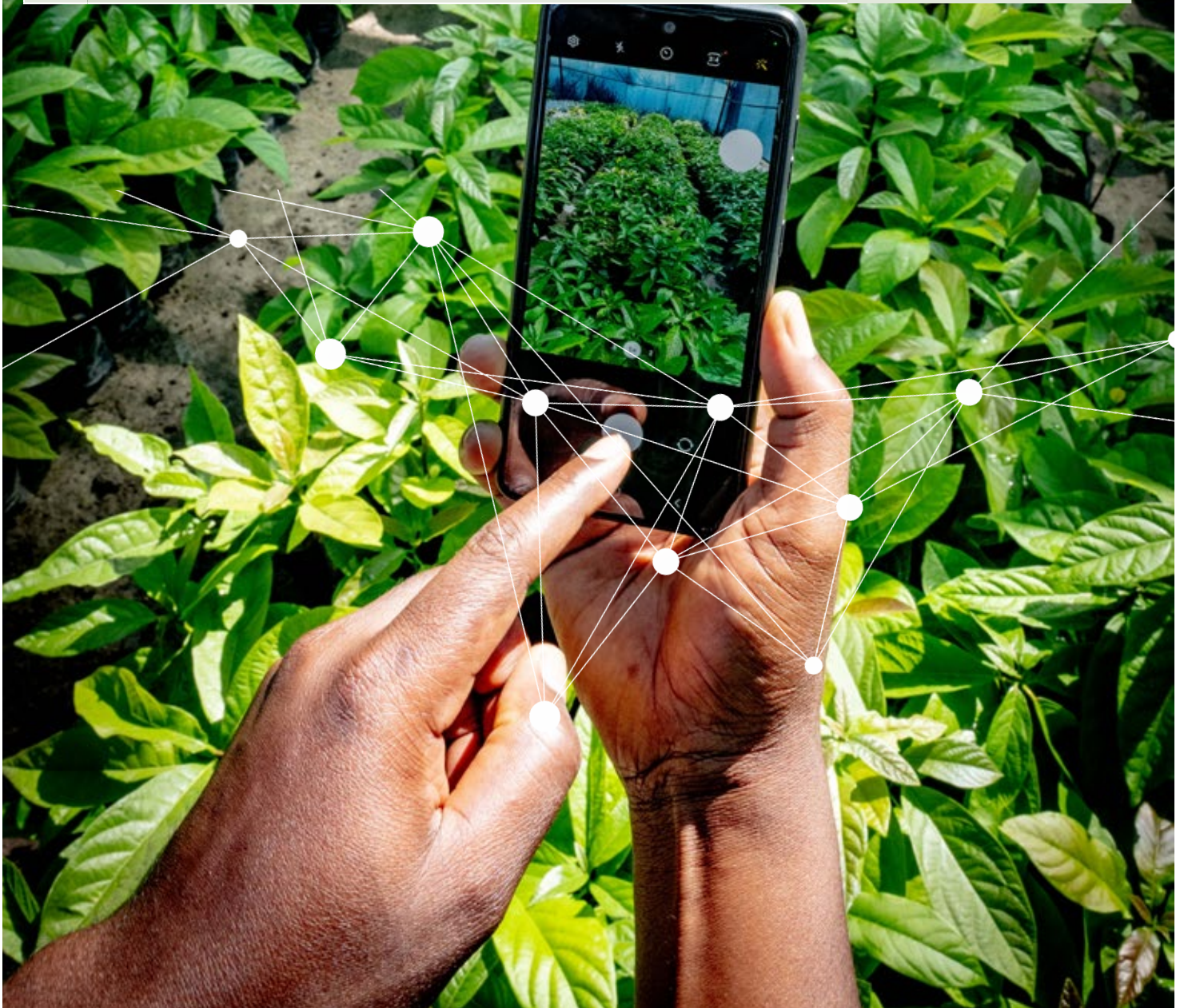
### CATEGORY 1 PROJECT/INITIATIVE INFORMATION

Tier	Indicator	Metrics	Frequency	Description/Comments	
1	7	Number of trees planted and surviving	At project initiation, reviewed annually as project activities progress.	<p>Important indicator for the 15 B initiative, only to be collected where tree planting is part of the restoration approach</p> <p>The total number of trees planted and surviving disaggregated by species type</p>	
	8	Number of tree seedlings produced		Number (species if available)	Important indicator for the 15 B initiative, only to be collected where tree seedling production is part of the restoration approach
	9	Land ownership/management		List <ul style="list-style-type: none"> <li>• Private (title/lease/traditional)</li> <li>• Communal (protected or open)</li> <li>• Public/government (protected or open)</li> </ul>	All options that apply from the list should be selected
	10	Project/initiative start and end date		Start Date: End Date	The start and end date of a restoration project or initiative should be indicated
	11	Contact person/name and information		Name, Email and Phone Number	
	12	Project/initiative partners		List: (names and institutions of each partner)	
	13	Challenges and mitigation measures in the project/initiative		List	List the challenges experienced in the project or initiative, any corresponding mitigation measures undertaken and lessons learned.
	14	Area/amount and level of degradation at baseline		Hectares/ length and level as a percentage	Hectares and level based on the ROAM definition, which will vary by ecosystem.
	15	Community members engaged		Number (disaggregated by sex, age and other groups)	<p>Details of projects/initiatives for restoration. Using meeting minutes or an attendance list from interventions</p> <p>Indicate whether the number of people engaged annually remains the same or if new people were engaged.</p>
	16	Community groups engaged		Number and description	<p>Using meeting minutes or an attendance list from interventions.</p> <p>Community groups are wide-ranging and should include marginalised groups such as persons living with disabilities, Indigenous Peoples groups and others.</p>
17	Women, men and youth in decision-making positions in engaged community groups	Number	Using meeting minutes or an attendance list from interventions		



### CATEGORY 1 PROJECT/INITIATIVE INFORMATION

Tier	Indicator	Metrics	Frequency	Description/Comments
1	18 Enabling restoration actions (for projects/initiatives not focused on the ground)	List and description of the type of enabling restoration action	At project initiation, reviewed annually as project activities progress.	Some restoration initiatives are not focused on ground restoration initiatives rather they focus on creating and enabling environment for restoration through actions such as policy development, enhancing the enforcement of laws and regulations relevant to restoration, capacity development of communities and other stakeholders in restoration best practices and technologies for different ecosystems, production of planting materials and seedlings, among others.





## CATEGORY 2 INVESTMENT IN RESTORATION

Tier	Indicator	Metrics	Frequency	Description/Comments	
1	19	Amount invested in restoration	Annually	Indicate the amount in either KES/USD invested in landscape and ecosystem restoration.	
	20	Source of funding		<ul style="list-style-type: none"> <li>• Private sector</li> <li>• Donor/development partner</li> <li>• National government</li> <li>• County government</li> <li>• Community contribution</li> <li>• Other (please specify)</li> </ul>	Indicate the source of funding. If the source is not listed, then the other option can be selected where there is a provision to specify the source:
2	21	Types of funding	Annually		
	22	Where it was invested			
	23	How it was invested			
	24	Percentage of funding allocated to gender-focused restoration activities			Gender-focused activities in restoration aim to ensure that restoration efforts are socially inclusive, equitable and effective by considering the different roles, needs, priorities and contributions of women and men in landscape and ecosystem restoration. This involves addressing gender-based disparities in access to land, resources, decision-making and benefits, thereby promoting long-term sustainability.
	25	Amount of time volunteered			Measured as the number of hours of volunteer time per year.
	26	Number of sustainable financing mechanisms established		Name and description	<p>Sustainable finance or green finance refers to the process of taking environmental, social and governance (ESG) considerations into account when making investment decisions in the financial sector, leading to more long-term investments in sustainable economic activities and projects. Environmental considerations might include climate change mitigation and adaptation, as well as the environment more broadly, for instance the preservation of biodiversity, pollution prevention and the circular economy. Social considerations could refer to issues of inequality, inclusiveness, labour relations, investment in people and their skills and communities, as well as human rights issues. The governance of public and private institutions – including management structures, employee relations and executive remuneration – plays a fundamental role in ensuring the inclusion of social and environmental considerations in the decision-making process<sup>57</sup>. Sustainable finance mechanisms include:</p> <ul style="list-style-type: none"> <li>• <b>Green bonds:</b> Debt instruments where the proceeds are earmarked for environmental projects (e.g., renewable energy, forest restoration).</li> <li>• <b>Blended finance:</b> Refers to the structured mobilisation of capital from diverse sources including public funds, philanthropic contributions and private investors to support projects that may be considered too risky or uncertain for private investment alone. It combines various financial instruments or tools (such as grants and loans) and investment sources thus enabling investors with differing objectives to collaborate effectively. Blended finance seeks not only to generate financial returns but also to achieve significant social and environmental impacts<sup>58</sup>.</li> </ul>

<sup>57</sup> [https://finance.ec.europa.eu/sustainable-finance/overview-sustainable-finance\\_en#:~:text=Sustainable%20finance%20refers%20to%20the,sustainable%20economic%20activities%20and%20projects.](https://finance.ec.europa.eu/sustainable-finance/overview-sustainable-finance_en#:~:text=Sustainable%20finance%20refers%20to%20the,sustainable%20economic%20activities%20and%20projects.)

<sup>58</sup> <https://forestdeclaration.org/blended-finance-forest-finance-gap/>



## CATEGORY 2 INVESTMENT IN RESTORATION

Tier	Indicator	Metrics	Frequency	Description/Comments
2	26 (continued)		Annually	<ul style="list-style-type: none"> <li>• <b>Payment for Ecosystem Services (PES):</b> Landowners or communities are compensated for managing ecosystems in ways that provide services like water purification, carbon storage, or biodiversity.</li> <li>• <b>Carbon markets &amp; carbon credits:</b> Mechanisms that allow entities to trade credits representing the reduction or removal of greenhouse gases e.g. REDD+ (Reducing Emissions from Deforestation and Forest Degradation) projects.</li> <li>• <b>Climate risk insurance:</b> refers to a set of financial tools that help transfer the risk of losses caused by extreme weather events, which are becoming more common and severe due to climate change. This type of insurance provides protection against damage or loss of life, livelihoods, or property resulting from such events. It enables quick and efficient payouts after a disaster to support recovery for those who are insured.<sup>59</sup></li> <li>• <b>Sustainability-Linked Loans (SLLs):</b> Loans where the interest rate is tied to the borrower's achievement of sustainability targets.</li> <li>• <b>Impact investing:</b> Investments made with the intention to generate positive, measurable social and environmental impact alongside financial returns.</li> <li>• <b>Environmental taxes and subsidies:</b> Fiscal mechanisms to discourage harmful activities (e.g., carbon taxes) or incentivize green behaviours (e.g., subsidies for solar installations).</li> <li>• <b>Green public procurement:</b> Government spending that prioritizes sustainability in its purchasing decisions, helping drive markets toward greener products and services.</li> </ul>
	27	Leverage ratio		Amount mobilised from an existing funding source as a ratio of 1 to x





### CATEGORY 3 POLICY, ADVOCACY AND COORDINATION

Tier	Indicator	Metrics	Frequency	Description/Comments
<b>2</b> Reported at sub-national and national levels	28	Number of new or updated policies that include restoration goals and have been officially adopted	Annually	Includes policies that have been adopted
	29	Number of adopted policies that are actively being implemented (resources, systems and public awareness in place)		Operationalised means the policies that are being implemented. Resources are allocated, the necessary people have been sensitised, procedures and processes established (such as enforcement and compliance mechanisms), and the public is aware of the policy.
	30	Number of ecosystem restoration and management plans gazetted		
	31	Number of policies that have been collaboratively/intersectorally designed		
	32	Number of pending policies		Includes policies that have been drafted or awaiting approval.
	33	Number of policies that include gender equality and social inclusion (GESI) principles		GESI is a framework that aims to ensure everyone, regardless of their social identity, has equal access to opportunities, benefits and participation in society. It focuses on addressing systemic barriers, power imbalances and discrimination that prevent marginalized groups from fully participating and benefiting from development and environmental processes.  Key GESI principles include: a) Social Inclusion, b) Equity, c) Fair and Participative Decision-Making, d) Access to Opportunities, e) Freedom from Bias, f) Gender Mainstreaming, g) Meaningful Participation and Representation.
	34	Number of restoration coordination, sensitisation and advocacy forums/platforms organised or facilitated		Number and description at national and county levels (including cross-sectoral and other)
	35	Number of groups and people reached by the forums/platforms		Includes number of groups represented in forums/platforms and number of individuals reached through emails, media and other forms with information from the forum/platform.



### CATEGORY 4 VALUE CHAINS

Tier	Indicator	Metrics	Frequency	Description/Comments	
2	36	Number of nature-based or green value chains initiated	Annually		
	37	Number of nature-based or green value chains (i.e. products) commercialised			
	38	Type of value chains promoted and commercialised		List	
	39	New markets accessed or linked		Number and description	
	40	Number of products certified		Number and description	
	41	Number of value addition infrastructure created		Number and description	
	42	Number and type of value chain players/actors engaged		Number and description (gender and age, social groups disaggregation)	
	43	Percentage of income ploughed back into restoration		Percentage (by gender, social groups and age disaggregation)	Measured as the percentage of profit that is re-invested in restoration through undertaking restoration activities.
	44	Number of financial schemes accessed to promote nature-based value chains		Number and description	
	45	Cooperatives /associations created to promote nature-based value chains		Number and description (including number of women and men participating)	
46	Bankable projects promoted	Number and description			



### CATEGORY 5 COMMUNICATION AND KNOWLEDGE

Tier	Indicator	Metrics	Frequency	Description/Comments	
2	47	Knowledge products produced and shared	Annually		
	48	Number of indigenous and traditional knowledge documented		Number and description of documentation	
	49	Number of functional knowledge management infrastructure developed for disseminating knowledge		Number and description (location, type, access)	A functional knowledge management infrastructure is one that works as reported by the users.
	50	Number of TIMPS (technologies, innovations and management practices) developed and promoted		Number and description	
	51	Number of restoration tools developed, used and considered useful			Includes feedback on the tools by a wider range of users to determine usefulness.
	52	Number of tools that train on GESI dimensions of restoration			

**TABLE 2.** Outcome indicators: Indicators used to track measurable performance of a project, programme or interventions efforts and changes in conditions in an ecosystem, landscape, society or individual that result from an intervention(s) in the medium term.



**CATEGORY 6  
ECOSYSTEM HEALTH**

Tier	Sub-category	Indicator	Metrics	Frequency	Description/Comments
2	Soil health	53 Soil organic carbon	g/cm <sup>2</sup> kg/ha or %	2-5 years +	The Land Degradation Surveillance Framework (LDSF) is a science-based methodology for assessing land and soil health, vegetation composition and the extent of land degradation over time through standardised field protocols. You can find it here: <a href="https://ldsf.thegrit.earth/">https://ldsf.thegrit.earth/</a>
		54 Soil erosion prevalence	% (prevalence over the total area) or by land use land cover change		
2	Land degradation neutrality	55 Changes in land cover	% degraded land	2-5 years +	Land degradation neutrality refers to the proportion of land that is degraded over the total land area.
		56 Total above-ground net primary production (NPP)	Net primary production (NPP)		
2	Aquatic health	57 Sediment in water	Turbidity; Total Suspended Solids (TSS)	Annual or seasonal, i.e. twice/year	Only applicable for aquatic ecosystems
		58 Chemical Composition	Dissolved nitrogen, phosphorous, oxygen (kg/L); electrical conductivity; pH; salinity)		The indicators under aquatic health focus on three main aspects: water quality, water quantity, habitat provision and biota.
		59 Number of eutrophication events	Number/count		Sediment in water is an indicator of water quality.
		60 Hydrograph	Streamflow and baseflow megalitres/day		Chemical composition is an indicator of water quality.
		61 Water depth, width and level	Meters		Number of eutrophication events is an indicator of water quality.
		62 Flood occurrence and extent	Number and area of flooding		Hydrograph is a graph that shows how water flow (discharge) in a river, stream, or watershed changes over time, usually in response to a rainfall event. It's an indicator of hydrology change or water quantity
		63 Wetland extent	Area (hectares)		Water depth, width and level is an indicator of water quantity or hydrology change
		64 Macrophytes and macroinvertebrate species	Species diversity and composition		Flood occurrence and extent is an indicator of hydrology change or water quantity
		65 Fish and invertebrate species	Species diversity and composition		Wetland extent is an indicator of water quantity or hydrology change
					Macrophytes and macroinvertebrate species is an indicator of habitat provision and biota
					Fish and invertebrates species is an indicator of habitat provision and biota



### CATEGORY 7 TREE COVER AND TYPE

Tier	Indicator	Metrics	Frequency	Description/Comments	
2	66	Forest cover	% Forest cover	<p>Classification used is adopted from the Kenya Forest Service (KFS) Forest Status Report - 2024 <a href="https://www.kenyaforestservice.org/national-forest-resources-assesment-report-2024-kenya/">https://www.kenyaforestservice.org/national-forest-resources-assesment-report-2024-kenya/</a></p> <p>These indicators on forest type and cover are measured by KFS.</p>	
	67	Forest type	Forest type (KFS classification) <ul style="list-style-type: none"> <li>• Montane forest</li> <li>• Western rain forest</li> <li>• Coastal forest</li> <li>• Mangrove forest</li> <li>• Dryland forest</li> <li>• Plantation forest</li> </ul>		5 years
	68	Tree cover	% Tree cover		
	69	Tree cover type	Percentage type: natural, planted, invasive type		
	70	Tree species	Tree spp. and benefits (medicinal, nutrition, biodiversity, carbon, income/economic)		



### CATEGORY 8 SOCIO-ECONOMIC RESTORATION BENEFITS

Tier	Indicator	Metrics	Frequency	Description/Comments
1	71	Number and types of green jobs created  Number of people employed in restoration-related fields  List of types of green jobs: <ul style="list-style-type: none"> <li>• Employed person</li> <li>• Employed person at work</li> <li>• Employed person not at work</li> <li>• Full time employee</li> <li>• Part time employee</li> <li>• Temporary employee</li> <li>• Volunteer</li> </ul>	Annually	<p>This refers to the number of people employed in restoration-related fields. Employment as defined by the International Labour Organisation (ILO)<sup>60</sup></p> <p><b>Employed person:</b> Employed person at work and Employed person not at work</p> <p><b>Employed person at work:</b> All persons who worked for pay or profit, or worked as unpaid family workers for at least one hour during the reference week</p> <p><b>Employed person not at work:</b> Among the persons with jobs but not at work during the reference week: i) Employee who did not work during the reference week but who received or were expected to receive wage or salary, ii Self-employed worker who did not work during the reference week and whose absence from work has not exceeded 30 days. Family workers who were not at work during the reference week are classified into Unemployed person or Not in labour force.</p> <p><b>Decent work:</b> Involves opportunities for work that is productive and delivers a fair income, security in the workplace and social protection for all, better prospects for personal development and social integration, freedom for people to express their concerns, organize and participate in the decisions that affect their lives and equality of opportunity and treatment for all women and men.</p> <p><b>Full-time employees</b> are people that are regularly paid for their work on the project and are working more than 30 hours per week throughout the year.</p> <p><b>Part-time employees</b> are people that are regularly paid for their work on the project and are working less than 30 hours per week throughout the year.</p> <p><b>Temporary employees</b> are people that are paid for their work on the project but work sporadically for less than four months in total per year.</p> <p><b>Volunteers</b> are people that are freely dedicating their time to the project but are not receiving payment for their work.</p> <p><b>Youths</b> are defined as people between and including the ages of 15 and 35, following the African Union's definition.</p>

<sup>60</sup> <https://www.ilo.org/resource/employment-1>



### CATEGORY 8 SOCIO-ECONOMIC RESTORATION BENEFITS

Tier	Indicator	Metrics	Frequency	Description/Comments
1	72	Number of people/ households with benefits (direct and indirect) from restoration	Annually	This refers to the number of individuals reporting themselves as better off.
	73	Number of women, men and youth who consider themselves better off because of restoration interventions or activities		



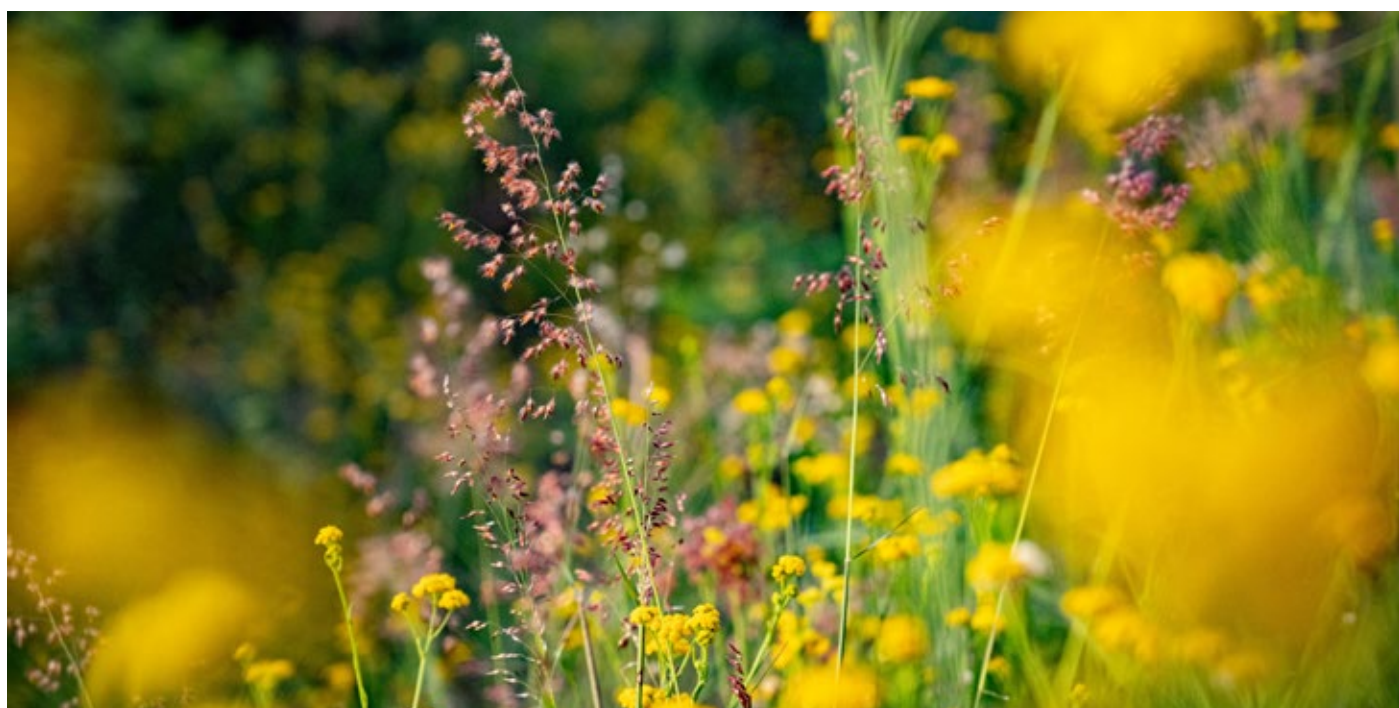
### CATEGORY 9 CAPACITY

Tier	Indicator	Metrics	Frequency	Description/Comments	
2	74	Change in the level of knowledge	Annually		
	75	Change in capacity and practice			Change in knowledge of men, women, youth from baseline self-assessment surveys (before, immediately after and 3–6 months later) <ul style="list-style-type: none"> <li>• Knowledge, Attitude, Practice (KAP) surveys</li> <li>• Focus group discussions or key informant interviews to assess perceived change and application of knowledge</li> <li>• Reflection exercises, learning journals, or story-based methods (like Most Significant Change) to capture qualitative insights</li> </ul>
	76	Change in attitude			Number of men, women and youth trained who have adopted technologies/ practices
		Number of men, women and youth who have a changed belief or feeling towards restoration from baseline		Attitude change can be measured using validated scales e.g., Likert Scale.	



### CATEGORY 10 BIODIVERSITY

Tier	Indicator	Metrics	Frequency	Description/Comments	
2	77	Community composition	5 years	Abundance of an indicator's species; species richness. S=total count of distinct species observed	Community composition tracks the presence and structure of species communities; used to infer ecological integrity or successional stage <sup>61</sup> .  Species richness tracks the total number of species in a given area which measures biodiversity by counting distinct species present in a habitat <sup>62</sup> .
	78	Enhanced ecological connectivity		Mean nearest patch distance  This indicator can also be measured as <ul style="list-style-type: none"> <li>• Area of biodiversity corridors</li> <li>• Connectivity indices (e.g., IIC, PC)</li> </ul>	This measures how connected habitats are for species movement and genetic flow <sup>63</sup> .
	79	Protected area coverage		Hectares of KBAs or PA which are legally protected	Area of key biodiversity areas protected. This assesses conservation effort through area under protection <sup>64</sup> .
	80	Change in habitat cover		Net change in native vegetation (satellite-based).	This metric detects trends in ecosystem area gain or loss (e.g., deforestation, regrowth) <sup>65</sup> .
	81	Proportion in key biodiversity areas in favourable condition		Proportion of KBAs in favourable condition (as a % of KBA area above ecological threshold)	This measures the state of habitat within biodiversity areas. Tracks management effectiveness and condition of priority biodiversity areas <sup>66</sup> .
82	Recovered services (Regulating services, Provisioning services, etc)	<ul style="list-style-type: none"> <li>• Carbon sequestration (tons/ha/year)</li> <li>• Water yield</li> <li>• Soil erosion reduction.</li> </ul>	Recovered ecosystem services is an indicator of change in ecosystems functions and integrity. This indicators evaluates return of regulating/provisioning services due to restoration <sup>67</sup> .		



61 FAO & UNEP (2021). FERM Framework Report; AURORA Monitoring Tool

62 FAO (2018). Measuring Biodiversity in Forests; AURORA

63 Saura & Pascual-Hortal (2007). Landscape Connectivity Indices; AURORA Monitoring Tool

64 UNEP-WCMC & IUCN (2023). Protected Planet Report

65 FAO (2021). Global Forest Resources Assessment; AURORA Tool

66 BirdLife International (2021). KBA Guidelines; AURORA Monitoring Tool

67 FAO (2021). Ecosystem Services Assessment Manual; AURORA Monitoring Tool



### CATEGORY 11 CLIMATE CHANGE (ADAPTATION/ RESILIENCE AND MITIGATION)

Tier	Sub Category	Indicator	Metrics	Frequency	Description/Comments
2	Biomass and carbon sequestration	83 Aboveground biomass stock	Allometric method – Kilograms (kg) or Mega grams (Mg) Mg/Ha for area based estimates	5 years	<p>Specify allometric models or forest carbon calculators for consistency.</p> <p>Allometry for GHG has three measurement Inputs</p> <ul style="list-style-type: none"> <li>• Tree diameter at breast height (DBH)</li> <li>• Tree height (H)</li> <li>• Wood density (<math>\rho</math>)<sup>68</sup>.</li> </ul> <p><b>Example:</b> Allometric equation for AGB = <math>0.0673 \times (\rho \times \text{DBH}^2 \times H)^{0.976}</math></p> <p>Global Ecology and Biogeography. In the absence of a species specific allometric equation, more generalized equations can be used.</p>
		84 Estimated sequestered GHG emissions	tCO <sub>2</sub> e (tonnes of CO <sub>2</sub> equivalent sequestered)	Annually	Carbon stock changes per unit of land (in ha) expressed in tonne of carbon dioxide equivalent per had and per year, to cover the whole agricultural sector including agriculture, forestry and other land use (AFOLU) <sup>69</sup> .
		85 Share of household expenditure on food items	Percentage of household expenditure		<p>This indicator reflects household economic vulnerability and adaptive capacity. When climate change disrupts livelihoods (agriculture) food becomes more expensive or income drops.</p> <p>High percentage = Household is more vulnerable and has lower resilience, as more income is spent just to meet basic food needs.</p> <p>Low percentage = Household likely has greater economic capacity, with more resources for non-essential spending (health, education, savings), indicating greater resilience<sup>70</sup>.</p>
		86 Percentage of farmers with agricultural insurance	Percentage		<p>Agricultural insurance helps farmers cope with climate shocks such as droughts, floods, pests and diseases and reduces vulnerability.</p> <p>Higher percentage = stronger institutional resilience and farmer protections.</p> <p>Lower percentage = greater exposure and less formal buffering to shocks. [Number of Farmers with Agricultural Insurance / Total number of Farmers x 100]<sup>71</sup>.</p>



68 Chave, J., et al. (2014). Improved Allometric Models to Estimate the Aboveground Biomass of TROPICAL Trees. *Global Change Biology*, 20, 3177-3190. <https://doi.org/10.1111/gcb.12629>

69 FAO. 2022. Ex-Ante Carbon-balance Tool | EX-ACT – Guidelines. Second edition – Tool version 9. Rome.

70 FAO. (2016). Resilience Index Measurement and Analysis – II (RIMA-II). Food and Agriculture Organization of the United Nations, Rome. <https://www.fao.org/3/i5665e/i5665e.pdf>

71 FAO & OECD (2021). Building Agricultural Resilience to Natural Hazard-induced Disasters

## 4

# Existing Restoration Monitoring Systems and Processes

The Monitoring Technical Working Group (MTWG) has systematically mapped national and sub-national restoration monitoring platforms and systems across the country's diverse ecosystems. This mapping was conducted during multiple events, including the National Level Workshop on Ecosystem Restoration Monitoring and Reporting (15 July 2024), Training Workshops on Data Use, Monitoring and Reporting in Taita Taveta (22–23 July 2024) and Makueni (24–25 July 2024), as well as the 3rd meeting of the MTWG (7 November 2024). These efforts identified key systems and processes and have also provided valuable insights into existing institutional arrangements, identifying where restoration data is already being collected. This comprehensive understanding is essential for implementing an interoperable system to enhance restoration monitoring and reporting.

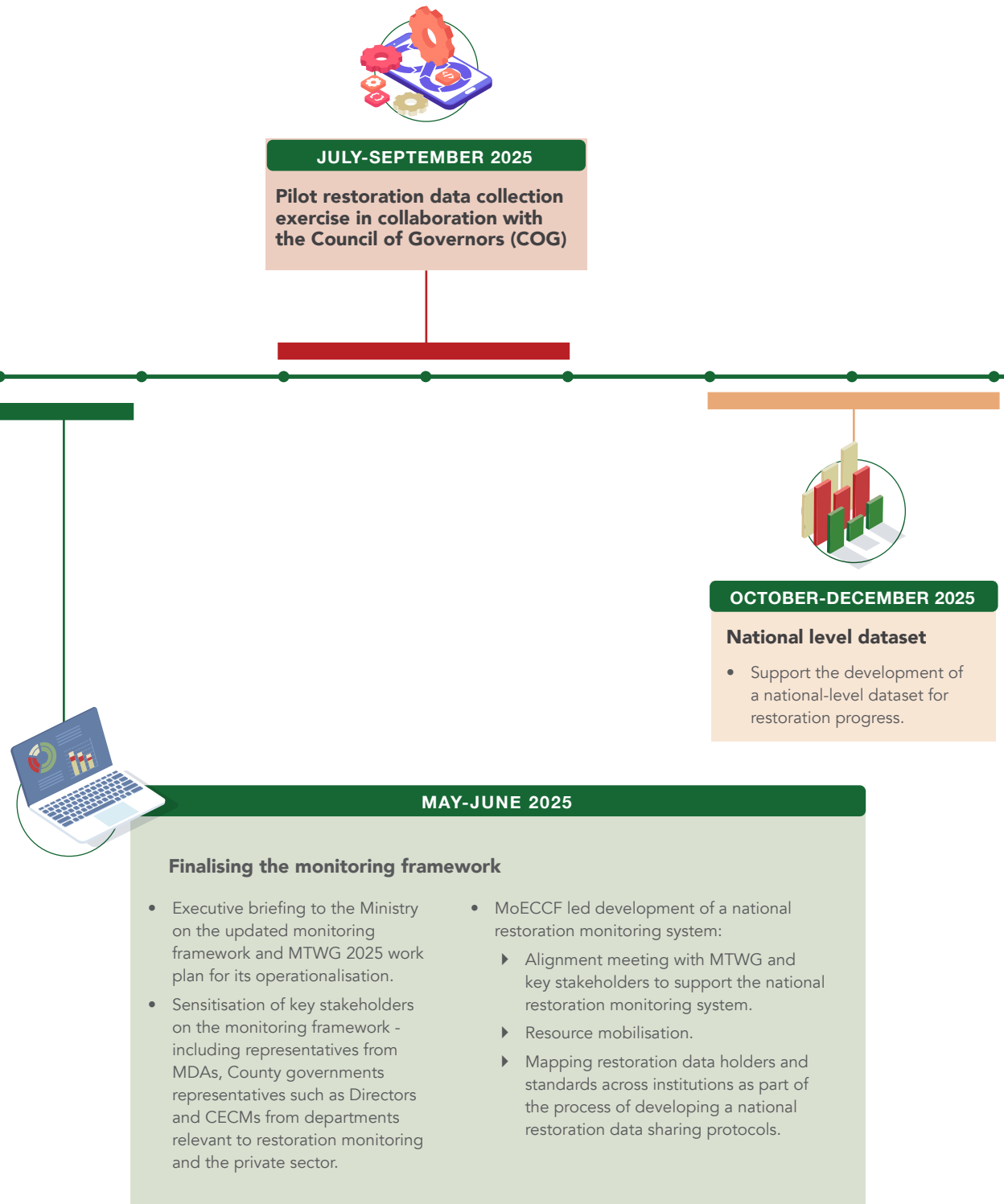
## The key monitoring systems/platforms and processes mapped include:

- Earth Observation Assisted Assessment and Monitoring of Ecosystem Health in Kenya
- JAZAMITI Tree Growing Activities Interactive Dashboard
- Laikipia Resilience Diagnostic Tool
- The Near Real Time Forest Alert System (NRTFAS)
- Restoration Monitoring Apps Ecosystem
- National Forest Monitoring System (NFMS)
- The TerraMatch Dashboard
- Kenya Forest Service Online Tree Planting Reporting System
- Regional Center of Excellence for Biodiversity and Forests in East Africa (RCOE)
- The Restoration Barometer
- National Clearing House Mechanism (NCHM)
- JICA-JAXA Forest Early Warning System in the Tropics (JJ-FAST)
- Integrated Water Towers Monitoring System (IWTMS)
- Framework for Ecosystem Restoration Monitoring (FERM)
- Council of Governors (COG) Open Data Portal
- System For Earth Observation, Data Access, Processing, Analysis for Land Monitoring (SEPAL)
- CGIAR research program on Forests, Trees and Agroforestry (FTA) Dashboard
- Council of Governors template for reporting the State of Devolution Address (SODA)
- Global Soil Erosion App
- Decision Dashboard for Turkana County



See annex 1 for more details about the systems or processes.

# 5 Roadmap to Operationalising the Framework



**FIGURE 2:** Next steps and actions

# Annex 1:

## Existing Restoration Monitoring Systems and Processes

Name	Host	Scale of operation	Part of the restoration process	Indicators tracked
<b>JAZAMITI Tree Growing Activities Interactive Dashboard</b>	Kenya Forestry Research Institute (KEFRI)	National	Monitoring	<ul style="list-style-type: none"> <li>Total number of tree seedlings planted</li> <li>Total number of tree seedlings planted by county</li> <li>Total number of tree seedlings planted by organisation/individual</li> <li>Planting dates, numbers of tree seedlings planted, locations planted and county planted by organisation /individual</li> </ul>
<b>The Near Real Time Forest Alert System (NRTFAS)</b>	Kenya Forest Service (KFS)	National	Assessment, Planning, Implementation and Monitoring	<ul style="list-style-type: none"> <li>Type of Forest threats and disturbance incidents reported, e.g. illegal construction, illegal tree cutting, forest fires, quarrying in a forest, kindling in a forest, waste dumping on forest land, illegal hunting, injury to trees, trespassing, stealing of tree seedlings, illegal grazing, illegal clearing of forestland.</li> <li>Reporting officer</li> <li>The source of the report (e.g., whether community, etc.)</li> <li>Total number of incidents reported</li> <li>Forest types in which the incidents reported occurred</li> </ul>
<b>National Forest Monitoring System (NFMS)</b>	Kenya Forest Service (KFS)	National	Monitoring	<ul style="list-style-type: none"> <li>Forest Cover and Change: Forest and tree cover by county and nationally.</li> <li>Carbon Stock: Estimates of carbon sequestration by region and forest type.</li> <li>REDD+ Metrics: Forest Reference Emission Levels (FRELs), MRV and safeguard information.</li> <li>Biodiversity and Land Use: Changes in biodiversity and land cover.</li> <li>Population Pressure: Population data from KNBS used to correlate deforestation drivers.</li> <li>Policy and Administrative Information: Institutional data, strategic plans and REDD+ implementation frameworks.</li> </ul>
<b>Kenya Forest Service Online Tree Planting Reporting System</b>	Kenya Forest Service	National	Assessment, Planning, Implementation and Monitoring	<ul style="list-style-type: none"> <li>General information: conservancy, county, forest station and land ownership</li> <li>Planting details: date of planting, location of planting, the area planted (ha) and number of seedlings planted</li> <li>Species: tree species, number planted, source of seedlings, number of estimated participants, planting organization, presiding guest and GPS coordinates</li> <li>Monitoring section (Survival count monitoring tree species): date of monitoring, monitoring officer, contacts and survival count</li> </ul>

Name	Host	Scale of operation	Part of the restoration process	Indicators tracked
<b>National Clearing House Mechanism (NCHM)</b>	National Environment Management Authority (NEMA)	National	Assessment and planning	<p><b>i. Headline indicators</b></p> <ul style="list-style-type: none"> <li>• Percentage of land and sea area covered by biodiversity-inclusive spatial plans</li> <li>• Proportion of agricultural area under productive and sustainable agriculture</li> <li>• Progress towards sustainable forest management</li> <li>• Average share of the built-up area of cities that is green or blue space for public use for all</li> <li>• Area under restoration</li> <li>• Indicator on biodiversity information for monitoring the Kunming-Montreal Global Biodiversity Framework</li> <li>• Coverage of protected areas and other effective area-based conservation measures</li> </ul> <p><b>ii. Complementary indicators</b></p> <ul style="list-style-type: none"> <li>• Habitat distributional range</li> <li>• Increase in secondary natural forest cover</li> <li>• Forest Landscape Integrity Index</li> <li>• Percentage of cropped landscapes with at least 10 per cent of natural land</li> <li>• Annual tropical primary tree cover loss</li> </ul> <p><b>iii. Other national indicators</b></p> <ul style="list-style-type: none"> <li>• Species Habitat Index</li> <li>• Land degradation Index</li> <li>• Mangrove restoration potential and success rate (Mangrove Restoration Tracker Tool)</li> <li>• Forest and tree cover</li> <li>• Land use change</li> <li>• land cover change</li> <li>• Acreage under agroecology or other ecosystems practices</li> </ul>
<b>Integrated Water Towers Monitoring System (IWTMS)</b>		National	Assessment, Planning, Implementation and Monitoring	<ul style="list-style-type: none"> <li>• Land use and land cover change</li> <li>• Land cover trends</li> <li>• Forest cover</li> <li>• Spatial distribution of springs</li> <li>• Population density – no. of households around the water towers</li> <li>• Tree cover loss*</li> <li>• Carbon emissions *</li> <li>• Fire occurrence *</li> </ul> <p>(* based of Global Forest Watch dataset)</p>
<b>Council of Governors (COG) Open Data Portal</b>	Council of Governors (COG)	National	Assessment, Planning, Implementation and Monitoring	<ul style="list-style-type: none"> <li>• Specific forest policies and regulations in place</li> <li>• Budget allocations for forestry in the county for the financial year</li> <li>• Number of foresters or county forest managers employed in the county</li> <li>• Amount of own-source revenue (OSR) generated by the county from administering certificates of origin and movement permits for farm forestry products (if applicable)</li> <li>• Status of implementation for the county farm extension services</li> <li>• Number of tree nurseries established by the county</li> <li>• Number of trees planted in the county in the financial year</li> <li>• Number of forests gazetted by the county</li> <li>• List of protected ecosystem areas designated for protection in the county (if applicable)</li> <li>• Percentage of the area in hectares restored in the county in the financial year</li> <li>• Existence of a functional tree-growing monitoring system at the county level, including documentation of monitoring tools used (If applicable)</li> </ul>

Name	Host	Scale of operation	Part of the restoration process	Indicators tracked
<b>Council of Governors reporting template for the State of Devolution Address (SODA)</b>	Council of Governors (COG)	National	Assessment, Planning, Implementation and Monitoring	<ul style="list-style-type: none"> <li>• Specific forest policies and regulations in place</li> <li>• Budget allocations for forestry in the county for the financial year</li> <li>• Number of foresters or county forest managers employed in the county</li> <li>• Amount of own-source revenue (OSR) generated by the county from administering certificates of origin and movement permits for farm forestry products (if applicable)</li> <li>• Status of implementation for the county farm extension services</li> <li>• Number of tree nurseries established by the county</li> <li>• Number of trees planted in the county in the financial year</li> <li>• Number of forests gazetted by the county</li> <li>• List of protected ecosystem areas designated for protection in the county (if applicable)</li> <li>• Percentage of the area in hectares restored in the county in the financial year</li> <li>• Existence of a functional tree-growing monitoring system at the county level, including documentation of monitoring tools used (If applicable)</li> </ul>
<b>Decision Dashboard for Turkana County</b>	Center for International Forestry Research - World Agroforestry (CIFOR-ICRAF)	Sub-national/county - Turkana County	Assessment, Planning, Implementation and Monitoring	<p>Land health Status:</p> <ul style="list-style-type: none"> <li>• Soil Erosion</li> <li>• Soil PH</li> <li>• Soil Organic Carbon (SoC)</li> <li>• Vegetation condition</li> </ul> <p>Other indicators:</p> <ul style="list-style-type: none"> <li>• Number of security incidents</li> <li>• Sex disaggregated school enrolment by grade by division</li> <li>• Livestock numbers and types by constituency and villages</li> <li>• Source of fuelwood for cooking and lighting</li> <li>• Irrigation schemes per location</li> <li>• Health facilities per constituency</li> <li>• Nutrition</li> <li>• WASH</li> <li>• Tourism</li> </ul>
<b>Earth Observation Assisted Assessment and Monitoring of Ecosystem Health in Kenya</b>	Center for International Forestry Research - World Agroforestry (CIFOR-ICRAF)	National	Monitoring	<p>Utilises the Ecosystem Health Surveillance System</p> <ul style="list-style-type: none"> <li>• Biophysical Indicators: <ul style="list-style-type: none"> <li>→ Soil erosion prevalence</li> <li>→ Soil fertility</li> <li>→ Soil sand content</li> <li>→ Soil Organic Carbon</li> <li>→ Soil PH</li> <li>→ Soil total nitrogen</li> <li>→ Vegetation cover dynamics and trends</li> <li>→ Land cover</li> <li>→ Land use</li> <li>→ Land degradation</li> </ul> </li> <li>• Socio economic indicators: <ul style="list-style-type: none"> <li>→ Household indicators: <ul style="list-style-type: none"> <li>· Food and nutrition security</li> <li>· Farm assets</li> <li>· Exposure and resilience to shocks</li> <li>· Gender and social equity</li> </ul> </li> <li>→ Village/community level indicators</li> </ul> </li> </ul>

Name	Host	Scale of operation	Part of the restoration process	Indicators tracked
<b>Laikipia Resilience Diagnostic Tool</b>	Center for International Forestry Research - World Agroforestry (CIFOR-ICRAF)	Sub national – Laikipia County	Assessment, Planning, Implementation and Monitoring	<p>Land health status:</p> <ul style="list-style-type: none"> <li>• Soil Organic Carbon (SoC)</li> <li>• Soil erosion prevalence</li> <li>• Vegetation cover status and trends – fractional vegetation cover</li> </ul> <p>Socio economic indicators:</p> <ul style="list-style-type: none"> <li>• Education – schools and grades</li> <li>• Health – maps of health centres and patients by month and years</li> <li>• Food security – food flows, food availability, cropping calendar, agricultural production, food consumption</li> </ul>
<b>The TerraMatch Dashboard</b>	World Resources Institute (WRI)	Regional (Africa)	Assessment, Planning, Implementation and Monitoring	<p>Trees Planted:</p> <ul style="list-style-type: none"> <li>• Number of Trees Planted - total number and by type of actor (Non-Profit or Enterprise)</li> <li>• Number of trees planted by year</li> <li>• Top 5 projects with the Most Planted Trees and the corresponding number of trees planted per project.</li> <li>• Hectares Under Restoration</li> </ul> <p>Total Hectares Under Restoration</p> <ul style="list-style-type: none"> <li>• Total Number of Sites</li> <li>• Restoration Strategies Represented</li> <li>• Target Land Use Types Represented</li> </ul> <p>Jobs Created</p> <ul style="list-style-type: none"> <li>• New Part-Time Jobs</li> <li>• New Full-Time Jobs</li> <li>• Jobs Created by Gender</li> <li>• Jobs Created by Age</li> </ul> <p>Active Countries</p> <ul style="list-style-type: none"> <li>• Active Projects</li> </ul>
<b>Regional Center of Excellence for Biodiversity, Forests and Seascapes from Eastern and Southern Africa (RCOE - ESA)</b>	Regional Centre for Mapping Of Resources For Development (RCMRD)	Regional (Eastern and Southern Africa)	Assessment, Planning, Implementation and Monitoring	<ul style="list-style-type: none"> <li>• Forest cover and forest loss</li> <li>• Land use and land cover changes</li> <li>• Biodiversity hotspots</li> <li>• Protected and conserved area coverage</li> <li>• Vegetation health (using NDVI)</li> <li>• Ecosystem integrity</li> <li>• Fire risk and occurrence</li> <li>• Deforestation drivers</li> </ul>
<b>The Restoration Barometer</b>	International Union for Conservation of Nature (IUCN)	Global	Monitoring	<p>Action indicators:</p> <ul style="list-style-type: none"> <li>• Policies and institutional arrangements</li> <li>• Funding</li> <li>• Technical planning</li> <li>• Monitoring systems</li> </ul> <p>Impact indicators:</p> <ul style="list-style-type: none"> <li>• Area of Land</li> <li>• Climate</li> <li>• Biodiversity</li> <li>• Economy</li> </ul>

Name	Host	Scale of operation	Part of the restoration process	Indicators tracked
<b>JICA-JAXA Forest Early Warning System in the Tropics (JJ-FAST)</b>	Japan International Cooperation Agency (JICA) & Japan Aerospace Exploration Agency (JAXA)	Global (78 countries)  South America: Bolivia, Brazil, Colombia, Ecuador, Guyana, Paraguay, Peru, Suriname, Venezuela  Central America: Belize, Costa Rica, El Salvador, Guatemala, Honduras, Mexico, Nicaragua, Panama, Trinidad and Tobago	Assessment, Planning, Implementation and Monitoring	<ul style="list-style-type: none"> <li>• Forest cover change - both positive and negative changes</li> <li>• Forest disturbances</li> <li>• Vegetation cover</li> <li>• Forest health indicators</li> </ul>
		Sub-Saharan Africa: Benin, Burkina Faso, Cote d'Ivoire, Ghana, Guinea, Guinea-Bissau, Liberia, Mali, Nigeria, Senegal, Sierra Leone, Togo, Burundi, Djibouti, Ethiopia, Kenya, Rwanda, Seychelles, Somalia, Sudan, South Sudan, Tanzania, Uganda, Cameroon, Central African Republic, Chad, Republic of Congo, Democratic Republic of Congo, Equatorial Guinea, Gabon, Madagascar, Angola, Botswana, Lesotho, Malawi, Mauritius, Mozambique, Namibia, Republic of South Africa, Sao Tome and Principe, Swaziland, Zambia, Zimbabwe  Asia: Bangladesh, Bhutan, Brunei, Cambodia, India, Indonesia, Laos, Malaysia, Myanmar, Nepal, Philippines, Sri Lanka, Thailand, Timor-Leste, Viet Nam  Oceania: Papua New Guinea, Solomon Islands		
<b>Framework for Ecosystem Restoration Monitoring (FERM)</b>	Food and Agriculture Organisation of the United Nations (FAO)	Global	Assessment, Planning, Implementation and Monitoring	<ul style="list-style-type: none"> <li>• Area under restoration - Area &amp; Ecosystems under restoration               <ul style="list-style-type: none"> <li>→ Committed area under restoration</li> <li>→ Total area under restoration</li> </ul> </li> <li>• Restoration Status: e.g. 'in planning', 'in progress', or 'post-completion monitoring'.</li> <li>• Restoration Types: Such as ecological restoration, rehabilitation, or unspecified</li> <li>• Tenure Status: Ownership and management rights, including communal, government, indigenous and traditional territories, jointly owned, private, or not reported.</li> <li>• Restoration initiative objectives or goals</li> <li>• Ecosystem Types (classified according to IUCN Global Ecosystem Typology levels 2 and 3)</li> <li>• Restoration Activities undertaken (adapted from IPBES/ The Economics of Ecosystem Restoration (TEER) frameworks).</li> <li>• Project Indicators (based on the AURORA and ISF indicators, along with the option of adding customizable indicators)</li> </ul>

Name	Host	Scale of operation	Part of the restoration process	Indicators tracked
<b>System For Earth Observation, Data Access, Processing, Analysis For Land Monitoring (SEPAL)</b>	Food and Agriculture Organisation of the United Nations (FAO)	Global	Assessment, Planning, Implementation and Monitoring	<ul style="list-style-type: none"> <li>• Land Cover and Land Use Change</li> <li>• Forest Cover Change</li> <li>• Vegetation Health</li> <li>• Forest Biomass and Carbon Stocks</li> <li>• Land Degradation</li> <li>• Wetland changes</li> <li>• Soil Moisture</li> <li>• Ecosystem Services</li> </ul>
<b>Restoration Monitoring Apps Ecosystem</b>	Center for International Forestry Research & World Agroforestry (CIFOR-ICRAF)	Global	Assessment, Planning, Implementation and Monitoring	<ul style="list-style-type: none"> <li>• Number of Farmers/Households benefiting from restoration</li> <li>• Total Area Under Restoration</li> <li>• Tree Species planted, including local and scientific names, survival rates, height and circumference at breast height (CBH), along with GPS coordinates.</li> <li>• Vegetation Health (utilises the Normalised Difference Vegetation Index (NDVI) to monitor vegetation greenness and assess restoration success over time)</li> <li>• Restoration Practices employed (such as Farmer-Managed Natural Regeneration (FMNR), rangelands restoration practices and tree planting)</li> <li>• Engagement, Training and Capacity Building - number and type of training and engagement sessions conducted for farmers and extension agents.</li> <li>• Tree Nurseries Supported</li> <li>• Projects</li> <li>• Users</li> </ul>
<b>CGIAR research program on Forests, Trees and Agroforestry (FTA) Dashboard</b>	Center for International Forestry Research - World Agroforestry (CIFOR-ICRAF)	<p>Global:</p> <p>Latin America: Bolivia, Honduras, Nicaragua, Peru</p> <p>Africa: Burkina Faso, Cameroon, South Africa, Rwanda and Uganda</p> <p>Southeast Asia: China, India, Laos</p>	Assessment, Planning, Implementation and Monitoring	<ul style="list-style-type: none"> <li>• Cultivated area %</li> <li>• Agroforestry trees present in cultivated areas</li> <li>• Vegetation/land cover %</li> <li>• Forest cover %</li> <li>• Average tree density (trees/ha)</li> <li>• Soil erosion prevalence</li> <li>• Soil Organic Carbon (SoC)</li> </ul>
<b>Global Soil Erosion App</b>	Center for International Forestry Research - World Agroforestry (CIFOR-ICRAF)	Global	Assessment, Planning, Implementation and Monitoring	<ul style="list-style-type: none"> <li>• Soil erosion prevalence for 2002, 2007, 2012 and 2017 developed using MODIS resolution 500m</li> </ul>



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