

# THE RESTORATION INITIATIVE

Impacts of a multi-county Forest and Landscape Restoration Programme united in support of the Bonn Challenge

## 1 ENVIRONMENTAL IMPACTS

### BACKGROUND

Ecosystems around the world are faced with the serious threat of degradation: approximately 30 per cent of the Earth's agricultural land is degraded<sup>1</sup> and over half of the world's tropical forests have been destroyed since the 1960s, affecting 1 billion of the world's poor.<sup>2</sup> Ecosystem degradation altogether impacts 40 per cent of the world's population, or around 3.2 billion people, and amounts to 10 per cent of global annual economic output caused by the loss of ecosystem services.<sup>3</sup>

Since 2018, [The Restoration Initiative](#) (TRI) has united nine countries and three leading institutions (IUCN, FAO, and UNEP) to implement 10 projects across Africa and Asia, with support from the Global Environment Facility (GEF) (See Figure 1). The main goal is to overcome existing barriers to restoration and restore degraded forests and landscapes in support of the Bonn Challenge.

1 <https://wedocs.unep.org/bitstream/handle/20.500.11822/36251/ERPNC.pdf>

2 IUCN. "Deforestation and forest degradation," IUCN Issues Brief (2021), <https://iucn.org/resources/issues-brief/deforestation-and-forest-degradation#:~:text=Over%20half%20of%20the%20tropical,forests%20to%20provide%20essential%20services>

3 [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)

Community member in Sao Tome and Principe at one of the nurseries established by TRI © FAO



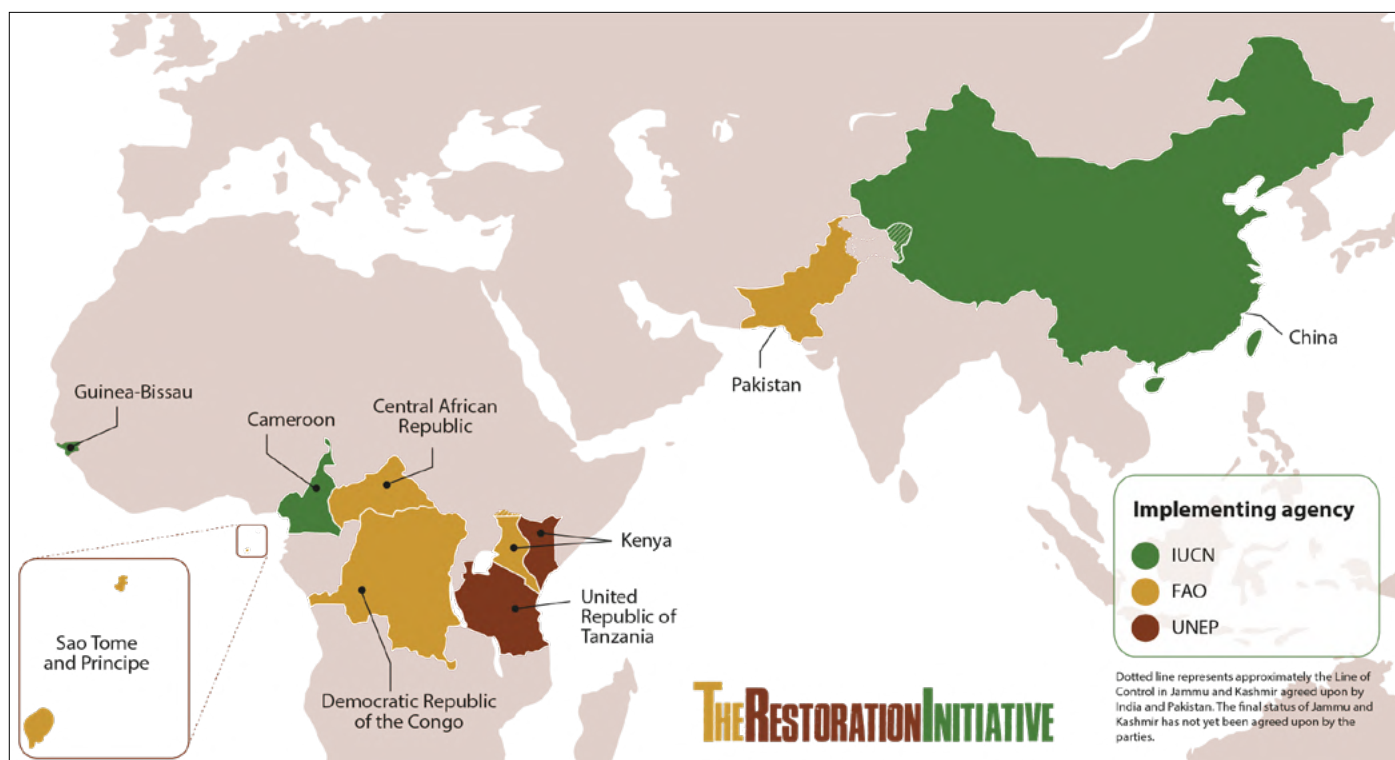


Figure 1: TRI participating countries. The boundaries and names shown and the designations used on this map do not imply official endorsement or acceptance by the United Nations. Adapted from: Freepik. 2021. Earth map linear composition. Cited on 7 October 2021. [www.freepik.com/free-vector/earth-map-linear-composition\\_9386670.htm#page=1&query=world%20-The Myanmar project has been suspended since November 2021 due to the political situation](http://www.freepik.com/free-vector/earth-map-linear-composition_9386670.htm#page=1&query=world%20-The%20Myanmar%20project%20has%20been%20suspended%20since%20November%202021%20due%20to%20the%20political%20situation).

To ensure long-term sustainability and ecological integrity, TRI restoration activities are guided by the Forest and Landscape Restoration (FLR) principles, developed by IUCN and further updated in 2018 by the Global Partnership on Forest and Landscape Restoration (GPFLR) (See Figure 2).<sup>4</sup> Informed by on-the-ground implementation, these FLR principles, along with others tailored for specific ecosystems, helped shape the *Principles for Ecosystem Restoration to Guide the UN Decade 2021-2030*<sup>5</sup> (hereafter UN Decade Principles). TRI is an outstanding example of large-scale ecosystem restoration that quickly aligned with the global restoration movement led by the UN Decade, as it integrates both UN Decade and FLR principles to restore, enhance, and sustain essential ecological and social functions in priority degraded and deforested landscapes, supporting long-term resilience.<sup>6</sup>

Underpinning these FLR principles is the landscape approach. This holistic perspective on restoration considers ecological connections, socioeconomic factors, and stakeholder alignment central to all restoration activities. Instead of focusing on individual sites, this

approach seeks to restore entire landscapes through a continuum of integrated activities across diverse, interacting land uses. This ensures long-term sustainability for the benefit of both nature and people. Additionally, inclusive governance that incorporates Indigenous Peoples and local communities (IPLCs) who own, govern, manage, and/or rely on these resources and territories is a crucial component of the landscape approach.<sup>7</sup>

For example, a successful FLR intervention using the landscape approach would not only involve tree planting but also consider the needs of diverse stakeholders in the planning phase, develop restoration interventions for surrounding ecosystems beyond deforested areas, support local and national policy adoption to strengthen future FLR implementation, address economic drivers of degradation through activities such as income diversification, and prevent future deforestation. TRI provides actionable insights on how a landscape approach can enhance biodiversity, climate resilience, and sustainable development, reinforcing global restoration goals.

4 <https://www.forestlandscaperestoration.org>

5 <https://openknowledge.fao.org/server/api/core/bitstreams/b234f058-9f77-4481-b870-a7fa2e7ad5f8/content>

6 <https://www.therestorationinitiative.org>

7 <https://portals.iucn.org/library/sites/library/files/documents/2022-032-En.pdf>



Figure 2: Principles of forest and landscape restoration (FLR). Source: IUCN and OneBigRobot

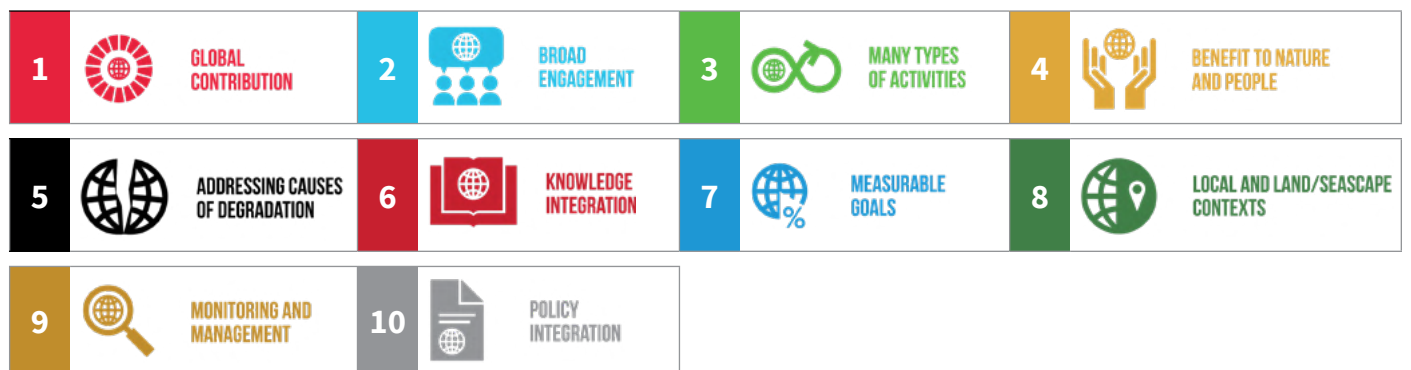
## PURPOSE OF THIS BRIEF

This brief series highlights The Restoration Initiative’s multi-level, long-term impacts. For more than 5 years, TRI has implemented large-scale forest and landscape restoration, uniting nine countries across ten projects in Africa and Asia.<sup>8</sup> Using the FLR and UN Decade Principles as a framework, this series explores various impacts across different dimensions.

**The first impact brief features the work of TRI on regaining the ecological functionality of deforested and degraded lands and contributing to long-term environmental goals using FLR interventions, cap-**

**tured in Principles 3, 4, and 5 of the UN Decade.** Although the ten principles of the UN Decade are complementary (see full list of principles at the bottom of this page), meaning that in designing and implementing restoration interventions, they should all be considered together, this impact brief specifically focuses on UN Decade Principles 3 (many types of activities, 4 (benefits to nature and people), and 5 (addresses causes of degradation), the key aspects of which are reflected in TRI’s work, as summarized in the boxes below and described in greater detail in the following section.

## THE TEN PRINCIPLES OF THE UN DECADE OF ECOSYSTEM RESTORATION



8 Cameroon, Central African Republic, China, Democratic Republic of Congo, Guinea Bissau, Kenya, Pakistan, São Tomé and Príncipe, and Tanzania.



### PRINCIPLE 3

ECOSYSTEM RESTORATION INCLUDES A CONTINUUM OF RESTORATIVE ACTIVITIES

UN Decade Principle 3 focuses on **ensuring ecosystem restoration, which comprises different activities**, implemented individually or together, **to rehabilitate all forms of degraded ecosystems**. This is achieved by:

- **Reduction of negative environmental and societal impacts**, such as pollution and unsustainable resource use and management;
- **Rehabilitation of ecosystem functions and services** in highly modified areas such as former mining sites and degraded production systems;
- **Ecological restoration**, which aims to remove degradation and assists in recovering an ecosystem to the trajectory it would be on if degradation had not occurred, accounting for environmental change.



### PRINCIPLE 4

ECOSYSTEM RESTORATION AIMS TO ACHIEVE THE HIGHEST LEVEL OF RECOVERY FOR BIODIVERSITY, ECOSYSTEM HEALTH AND INTEGRITY, AND HUMAN WELL-BEING

UN Decade Principle 4 reflects on the need to **achieve the highest level of recovery for biodiversity, ecosystem health and integrity, and human well-being** by providing benefits to nature and people. This can be achieved by:

- Implementing restoration interventions as a means to **enhance nature conservation** instead of substituting, particularly in areas with high ecological integrity and high value for ensuring ecological connectivity;
- Ensuring that management practices intended to be restorative should support and assist the natural recovery process and **not cause further degradation**;
- **Favouring** genetically appropriate germplasm of **native species** over non-native species that may potentially have or already proven to be invasive should be avoided.



### PRINCIPLE 5

ECOSYSTEM RESTORATION ADDRESSES THE DIRECT AND INDIRECT CAUSES OF ECOSYSTEM DEGRADATION

UN Decade Principle 5 stresses the importance of **ecosystem restoration, tackling direct and indirect causes of ecosystem degradation**. This is achieved by:

- **Eliminating land uses and property regimes that perpetuate ecosystem degradation** and hinder the long-term sustenance of restored landscapes;
- **Adopting sustainable practices** and production systems that strengthen biodiversity conservation and restoration, as well as climate change mitigation and adaptation;
- **Implementing measures that minimise the impacts of anthropogenic activities**, including urbanisation, infrastructure growth, resource extraction, and unsustainable practices in production and consumption.

Focusing on these critical principles, TRI has helped to bring under restoration 354,744 hectares (ha) of land, improve sustainable land management across 715,164 hectares, and achieve a reduction of 27.4 million tons of CO<sub>2</sub> equivalent through mitigation and sequestration efforts.

These numbers will likely increase as projects that began at different times progress toward their targets, with many still on track to meet their goals by their respective end dates.<sup>9</sup> This brief includes three case studies that explain how different project countries have implemented strategies and interventions to actualise these impacts.

<sup>9</sup> The respective end dates of the TRI child projects are as follows: Cameroon (July 2024), Central African Republic (December 2025), China (December 2023), Democratic Republic of Congo (August 2024), Global Support Project (December 2024), Guinea Bissau (November 2024), Kenya ASAL (March 2025), Kenya Tana Delta (June 2025), Pakistan (December 2024), São Tomé and Príncipe (May 2025), Tanzania (December 2026).

## WHAT ARE THE ENVIRONMENTAL IMPACTS OF TRI?

TRI's 10-country projects varied considerably in terms of landscapes and ecosystems, environmental challenges, restoration activities required to mitigate these challenges, biodiversity preservation needs, and carbon sequestration potentials. As a result, a thorough baseline analysis was conducted to inform the design of TRI country projects that included a participatory consultative process. This ensured the adoption of achievable project-specific environmental targets and outcome indicators to monitor success.<sup>10</sup>

TRI's work was designed to overcome challenges related to restoration and generate environmental benefits, including biodiversity protection, climate change mitigation, and enhanced ecosystem services. The impact of TRI's activities is described below. The section is structured as follows:

TRI's work was designed to address challenges related to restoration while generating significant environmental benefits, including biodiversity protection, climate change mitigation, and enhanced ecosystem services. The impact of TRI's activities is detailed in the following sections. First, the restoration of degraded ecosystems and the implementation of effective restoration practices are highlighted, showcasing the outcomes and impacts of TRI's restoration efforts. Next, the practical application of the Decade and FLR

principles through TRI's restoration work is explored, demonstrating alignment with UN Decade Principles 3, 4, and 5. The focus then shifts to TRI's diverse ecosystem approach, followed by examining TRI's impact on climate change mitigation through CO<sub>2</sub> sequestration efforts. Finally, the practical application of the Decade and FLR principles in TRI's climate change mitigation work is reviewed, illustrating how TRI achieved these outcomes in alignment with Principle 5.

### TRI Restoration Impacts

TRI implements the **landscape approach** to forest and landscape restoration, aiming to repair and support the recovery of areas that have been degraded, damaged, destroyed, or substantially modified. Through this approach, TRI seeks to support the **restoration of ecosystem functions at a landscape level, reflecting a shift from site-specific interventions to broader, integrated landscape restoration**. Therefore, measuring **the area of land actively undergoing restoration** provides a tangible indicator to understand where restoration work has commenced physically, reporting on aggregate numbers and four critical land-use type sub-indicators: (a) agricultural, (b) forests and forest lands, (c) natural grass and shrublands, and (d) wetlands – including mangroves. This breadth is intentional, designed to promote '*mosaic restoration*'<sup>11</sup>,



Agroforestry plantation efforts in Mbaiki Area in CAR. © FAO/ Benjamin DeRidder

<sup>10</sup> Carbon sequestration potential was determined before the start of TRI, which helped establish the targets; however, this was contingent on the confirmation of specific restoration interventions that resulted from subsequent participatory processes to determine specific targets.

<sup>11</sup> [https://www.forestlandscaperestoration.org/site/assets/files/1137/gpflr\\_final-27aug.pdf](https://www.forestlandscaperestoration.org/site/assets/files/1137/gpflr_final-27aug.pdf)

a method used **when forests are interlinked with agricultural land, grasslands, and other ecosystems**. This indicator encompasses, therefore, areas undergoing restoration in terms of ecosystem function and ecology, including protected areas.

In line with Principle 3 of the UN Decade, TRI implements **many restoration interventions across landscapes to enhance habitats, ecosystem resilience, and biodiversity conservation**. TRI has adopted a

range of restoration activities across forests and landscapes and their surrounding areas, aiming to achieve a balanced integration of ecological, social, and economic priorities across entire landscapes. **As a result, TRI has brought under restoration 354,744 hectares of land across its project countries.**<sup>12</sup>

The Figure 3 and Table 1 below represents the total land area under restoration in hectares for each TRI project country.

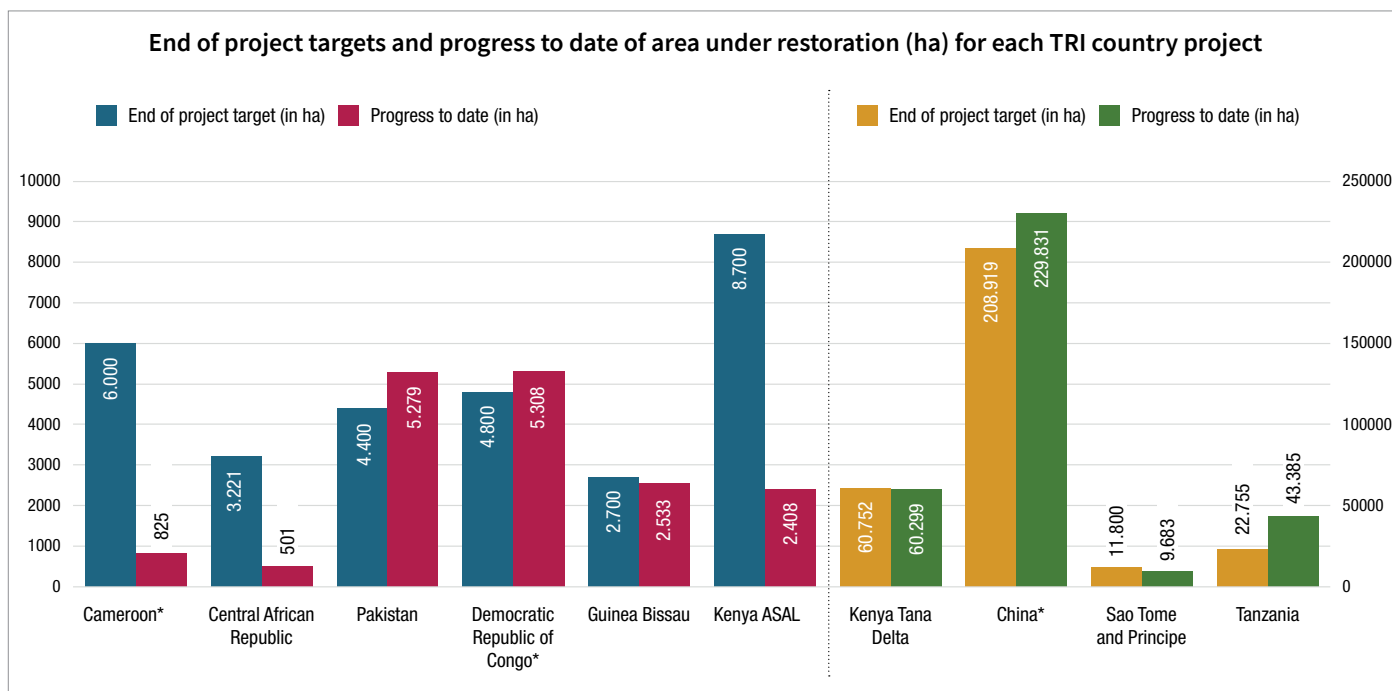


Figure 3: End of project targets and progress to date of area under restoration (ha) for each TRI country project.

TRI COUNTRY PROJECT	END OF PROJECT TARGET (IN HA)	PROGRESS TO DATE (IN HA)
Cameroon*	6,000	825
Central African Republic	3,221	501
China*	208,919	229,831
Democratic Republic of Congo*	4,800	5,308 <sup>13</sup>
Guinea Bissau	2,700	2,533
Kenya ASAL	8,700	2,408
Kenya Tana Delta	60,752	60,299
Pakistan	4,400	5,279
Sao Tome and Principe	11,800	9,683
Tanzania	22,755	43,385
<b>TOTAL</b>	<b>334,047</b>	<b>360,052</b>

Table 1: End of project targets and progress to date of area under restoration (ha) for each TRI country project.

\* Represents that the country project has been completed.

<sup>12</sup> Numbers reported as to June 2024.

<sup>13</sup> DRC reports a combined figure for area under restoration and increased area under improved practices.

Furthermore, contributing to the UN Decade Principle **4 for the long-term adoption of FLR practices that benefit nature and people**, TRI has implemented interventions that expanded the area of landscapes under improved practices and collected annual data on the progress. This includes production sectors such as agriculture, forestry, and tourism that enhance environmental conditions beyond protected areas, measured by the restored land area. **These efforts directly support biodiversity conservation, combat desertification, and address the root causes of degradation by embedding sustainable management into landscape use across non-protected areas (Principle 5). As a result, TRI has brought 717,508 hectares of land under improved practices across its project countries.**

TRI disaggregates this core indicator into sub-indicators that reflect the specific impacts of improved management practices: (a) areas benefiting biodiversity without certification, (b) areas certified at national or international levels to benefit biodiversity, (c) sustainable land management within production systems, and (d) forest loss avoided. Revised monitoring guidelines have clarified reporting distinctions, yet overlap remains in some country projects, including China.

The figure below represents the total increased area under improved practices in hectares for each TRI project country.

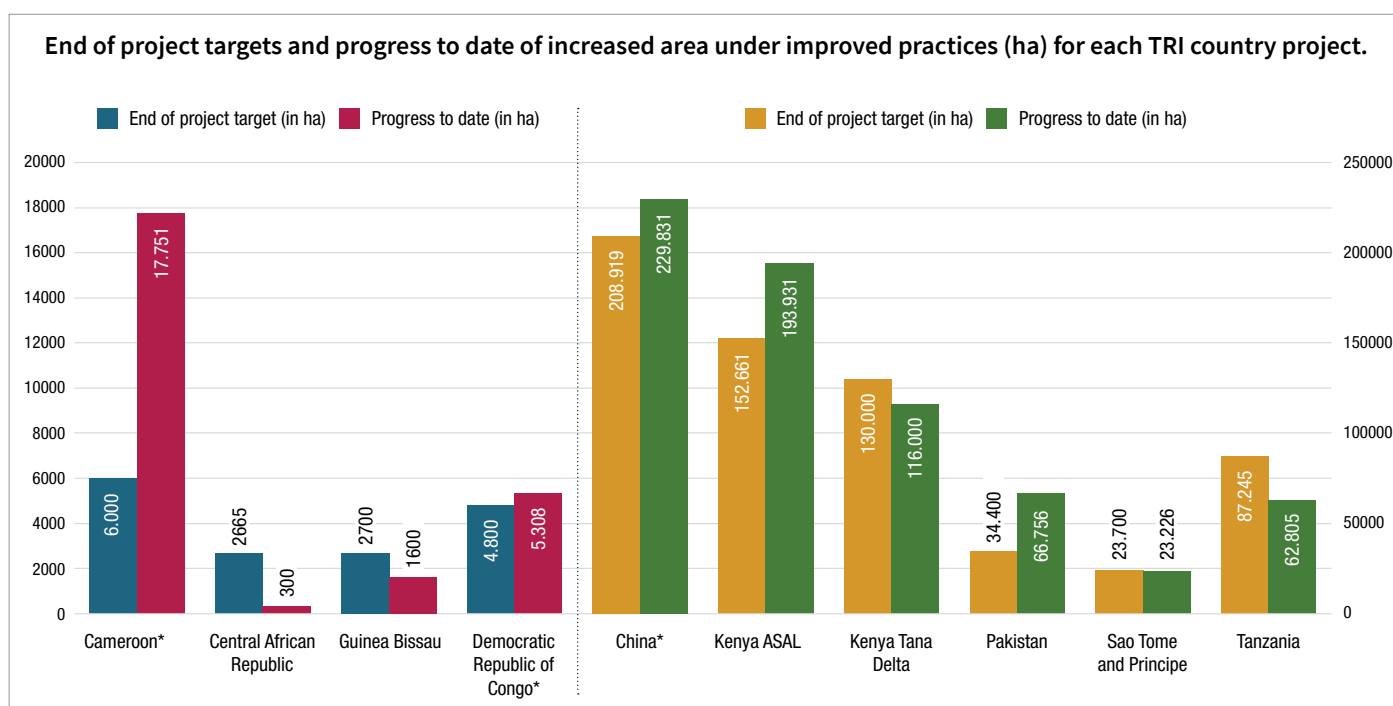


Figure 4: End of project targets and progress to date of increased area under improved practices (ha) for each TRI country project.

TRI COUNTRY PROJECT	END OF PROJECT TARGET (IN HA)	PROGRESS TO DATE (IN HA)
Cameroon*	6,000	17,751
Central African Republic	2,665	300
China*	208,919	229,831
Democratic Republic of Congo*	4,800	5,308
Guinea Bissau	2,700	1,600
Kenya ASAL	152,661	193,931
Kenya Tana Delta	130,000	116,000
Pakistan	34,400	66,756
Sao Tome and Principe	23,700	23,226
Tanzania	87,245	62,805
<b>TOTAL</b>	<b>653,090</b>	<b>717,508</b>

Table 2: End of project targets and progress to date of increased area under improved management (ha) for each TRI country project. \* Represents that the country project has been completed.

## Practical implementation of the Decade and FLR principles through TRI restoration impacts

To ensure that **interlinked areas adjacent to forests are also considered for restoration**, TRI implemented FLR activities on various ecosystems. In China, TRI's restoration efforts have centred on forests and forest lands, with more than 220,000 ha restored within state forest farms (SFFs), contributing heavily to the project's achievement of surpassing its overall area under restoration target.<sup>14</sup> TRI in Kenya Tana Delta advanced the restoration of agricultural landscapes by supporting indigenous tree seeding, planting, and pasture seed banks. Roughly one-sixth of the restored land was dedicated to these practices.<sup>15</sup> Lastly, Guinea Bissau has surpassed its restoration target specifically for degraded agricultural lands whilst striving towards its overall area under restoration goal. This success, rooted in rice farming<sup>16</sup>, is part of a larger landscape strategy that combines agricultural restoration with watershed restoration in mangrove areas, enhancing food security while preserving surrounding ecosystems.

Furthermore, TRI contributes to Principle 4 by ensuring that management practices adopted or restoration and natural recovery processes do not cause further degradation. Besides the work carried out by TRI country project teams under policy creation and knowledge production and dissemination, explained in Impact Brief 3 of these series, SFFs in China are great examples of how TRI contributed to improving management techniques. **Expanding the management focus of SFFs, primarily timber production, to a more balanced approach that prioritises all ecosystem services has been influential in preventing further degradation.**

On another note, **TRI implemented measures that minimise the impacts of anthropogenic activities for the long-term sustainability of the interventions.** In Cameroon, 17,571 hectares of forest have been brought under improved management, surpassing targets. Restoration efforts, including bamboo and NTFP planting, have enhanced biodiversity by reducing ecosystem encroachment around farmlands and waterways. Community sensitisation further support-



*Chilgoza forest landscape in the Himalayan region of Pakistan © FAO/Christophe Besacrier*

ed conservation and sustainable ecosystem functionality. Moreover, Pakistan exceeded targets with 65,266 hectares managed under new multifunctional plans for Chilgoza forests. Agroforestry on degraded lands and 3,789 hectares of assisted natural regeneration (ANR) contribute to biodiversity, sustainable land use, and community livelihoods, addressing critical drivers of degradation.

### TRI's diverse ecosystem focus

In addition to quantitative evidence collected on TRI's restoration activities, project country teams tailored and adopted a **set of diverse restoration activities to address the specific needs of local ecosystems** and communities at the landscape level (Principle 3). The landscape approach necessitates appropriate restoration strategies for various ecosystems, including ter-

<sup>14</sup> All interventions take place in the State Forest Farms, which are intensely managed and in and of themselves always considered as lands under improved land practices/ongoing land-use as well as areas under restoration.

<sup>15</sup> The number reported by TRI in Kenya Tana Delta includes areas designated as Indigenous Community Conservation Areas (ICCAs) with active management plans and community governance structures established in 2019.

<sup>16</sup> Restoring rice fields in Guinea Bissau involves building dykes and planting mangrove trees, which is a type of hybrid land use that merges restoration and improved management. Therefore, this applies to both areas under restoration and areas of landscapes under improved practices.



restrial, inland water, marine, and coastal areas. Thus, each TRI project identified at least one FLR intervention type.<sup>17</sup> Based on their unique challenges and needs. To understand local ecology and current land uses, TRI implemented a baseline analysis of the Restoration Opportunities Assessment Methodology (ROAM)<sup>18</sup> that incorporates a participatory process bringing together multiple stakeholders, including primary (land owners and users, and communities), secondary (government agencies), and interest groups (national NGOs and international organisations). Applying ROAM also informed the selection of areas with the highest potential for restorations within project sites and types of FLR interventions best suited to maximise ecosystem recovery and support human livelihoods.

In Kenya ASAL, for instance, **TRI employed a broad range of restoration and improved management interventions ranging from agroforestry to inno-**

**vative micro-catchments for watershed protection** to rehabilitate Mukogodo Forest and Mount Kulal Biosphere Reserve that include dryland forests and flat rangelands at the landscape level. TRI in CAR focused on the surroundings of Bangui to implement diverse interventions ranging from convincing communities to convert their land into community forests for the benefit of biodiversity to village agroforestry plantations strengthened by public-private partnerships (PPP). **The main goal of implementing this mosaic of interventions is diversifying income for local communities and businesses to halt landscape-degrading activities long-term and benefit nature and biodiversity, which aligns with Principle 5.**

The table below illustrates the critical intervention types prioritised and implemented at each TRI country project.

	Natural regeneration	Silviculture	Agroforestry	Planted forests & woodlots	Improved fallow	Mangrove restoration	Watershed protection and erosion control
Cameroon	Forest protection		Agroforestry: Bamboo and NTFP plantations				
Central African Republic	Assisted natural regeneration (ANR) in forests and woodlands	Promotion of wood energy plantation	Agroforestry	Reforestation			
China		Sustainable forest management (SFM)					
Democratic Republic of Congo			Agroforestry	Reforestation			Erosion control
Guinea Bissau					Ricefield restoration	Mangrove restoration	
Kenya's arid and semi-arid lands (ASAL)	Assisted natural regeneration (ANR) in grasslands, shrublands and savannahs		Agroforestry; NTFPs	Reforestation			Vallerani method; Half-moon (micro-catchments, water capture, swells, reseeding of grasslands)
Kenya Tana Delta			Agroforestry				Vallerani method; micro-catchments
Pakistan	Assisted natural regeneration (ANR) in forests and woodlands, Conservation			Reforestation			
São Tomé and Príncipe	Assisted natural regeneration (ANR) in forests and woodlands		Agroforestry	Reforestation		Mangrove replanting	
Tanzania		Sustainable forest management (SFM)			Sustainable agriculture & livestock keeping		Integrated water resources management

Table 3: Key FLR interventions implemented by TRI country projects

17 IUCN Restoration Intervention Typology for Terrestrial Ecosystems [https://restorationbarometer.org/wp-content/uploads/2022/02/iucn\\_restoration\\_intervention\\_typology.pdf](https://restorationbarometer.org/wp-content/uploads/2022/02/iucn_restoration_intervention_typology.pdf)

18 <https://portals.iucn.org/library/sites/library/files/documents/2014-030.pdf>

## TRI's impact on climate change mitigation

Lastly, TRI recognised the significant potential of FLR interventions to enable **considerable carbon storage and, thus, assume the role of a climate change mitigation mechanism by increasing the productivity, diversity, and functionality of degraded and deforested lands**.<sup>19</sup> Thus, TRI measured the levels of climate change mitigation achieved through its interventions. **This goal seeks to contribute to Principle 5 in alignment with addressing the root causes of environmental degradation.**

The specific data was collected on reductions in greenhouse gas (GHG) emissions, capturing the total metric tons of CO<sub>2</sub> equivalents (tCO<sub>2</sub>e) either sequestered or emissions avoided. This monitoring spans the 'Agriculture, Forestry, and Other Land Use (AFOLU)' sector across three levels: (a) direct GHG emissions mitigated during the project's duration, (b) indirect GHG emissions mitigated throughout the project's duration<sup>20</sup>, and (c) direct post-project emissions mitigated as a result of sustained FLR practices.

**Through this structured approach, TRI country projects have reported considerable GHG emissions reductions, although the number of reporting countries on this indicator still needs to be completed.** In China, for example, TRI-supported FLR interventions exceeded national targets, resulting in carbon sequestration, and avoided emissions totalling 11,260,000 tCO<sub>2</sub>e. Within this, direct emissions avoided amounted to 3,640,000 tCO<sub>2</sub>e, with an additional 7,620,000 tCO<sub>2</sub>e achieved indirectly through landscape-level interventions. TRI's FLR interventions – such as reforestation, afforestation, and agroforestry adapted through the landscape approach, provide a relatively cost-effective solution for climate change mitigation, particu-

larly when tailored to local conditions<sup>21</sup>. They help address the root causes of degradation, such as climate change, as outlined in **Principle 5 of the UN Decade**.

Table 4 represents progress for direct GHG emissions mitigated for reporting countries. After finalising their projects, all remaining TRI project countries will report on this indicator.

## Practical implementation of the Decade and FLR principles through TRI's climate change mitigation focus

To achieve reliable, standardised measurements, TRI employs the EX-ACT, a comprehensive tool developed by the FAO to quantify the outcomes of agricultural interventions, including the AFOLU sector, on GHG emissions.<sup>22</sup> **EX-ACT provides TRI with a robust methodology for assessing carbon emissions sequestered or avoided, offering a solid framework to monitor FLR impacts on climate.** TRI Global Child project has been instrumental in building the technical capacity of country project teams to use EX-ACT effectively. **Having learnt and implemented EX-ACT as a unified tool to assess and monitor CO<sub>2</sub> emission reduction, TRI country project teams ensure that the restoration intervention practices do not cause further degradation.**

Throughout 2022 and 2023, the global project organised hybrid and in-person training sessions to develop proficiency in the tool among the TRI community, reaching roughly 100 participants across Kenya, CAR, Cameroon, DRC, Guinea Bissau, and Sao Tome and Principe. Specifically, in CAR, TRI collaborated with the Economic and Policy Analysis of Climate Change (EPIC) program to release version 9.4 of the Ex-ACT tool, making it accessible to a broader audience and optimising its application for TRI's carbon assessment needs.

TRI COUNTRY PROJECT	END OF PROJECT TARGET (IN tCO <sub>2</sub> e)	PROGRESS TO DATE (IN tCO <sub>2</sub> e)
Cameroon*	384,218	243,796
China*	3,793,952	6,096,021
Democratic Republic of Congo*	1,064,457	1,366,796
Guinea Bissau	520,493	482,049
Tanzania	2,224,846	6,810,000

Table 4: End of project targets and progress to date of direct GHG emissions mitigated for each reporting TRI country project.

\* Represents that the country project has been completed.

19 IUCN. 2019. Forest Landscape Restoration in the spotlight. Contributions of FLR to the implementation of the UN Strategic Plan for Forests and the thematic priorities of the SDGs under review at HLPF 2019. IUCN Submission for the UN Forum of Forests 14th session on good practices, success stories and lessons learned on forests. [www.un.org/esa/forests/wp-content/uploads/2019/05/IUCN-good-practices.pdf](https://www.un.org/esa/forests/wp-content/uploads/2019/05/IUCN-good-practices.pdf).

20 In this context, indirect GHG emissions mitigated are those attributable to the long-term outcomes of GEF activities that remove barriers, such as capacity building, innovation, and catalytic action for replication.

21 <https://openknowledge.fao.org/server/api/core/bitstreams/ebd65086-e214-4d51-9e26-e326089814e4/content>

22 <https://www.fao.org/in-action/epic/ex-act-tool/suite-of-tools/ex-act/es/>

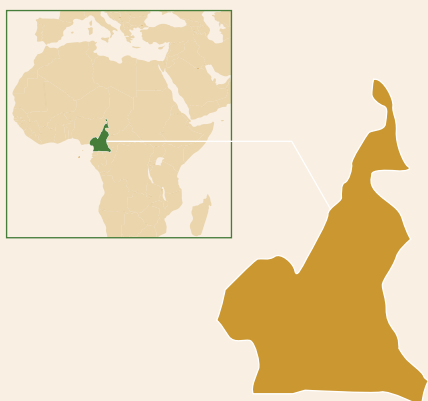
## HOW DID TRI ACHIEVE THESE IMPACTS?

TRI employed a holistic, multi-faceted approach to achieve its restoration targets. This involved tailoring restoration strategies to local contexts across diverse landscapes, integrating modern scientific methods with traditional knowledge, and ensuring that the interventions restored ecosystems and delivered socio-economic benefits to local communities. This has been possible through activities TRI adopted, such as diversifying income-generating activities in the AFOLU sectors, supporting bio-enterprises in the form of capacity-building, training, funding, and marketing and value chain analyses, providing improved and more

efficient land management strategies like preventing forest clearing. By addressing the root causes of degradation, including deforestation, land-use change, and resource depletion, TRI's efforts were designed to create long-term environmental and social resilience, demonstrating how restoration can serve both nature and people – increasing their income and food access.

These three case studies—from Cameroon, China, and Kenya ASAL—highlight TRI's diverse and impactful approaches to restoring ecosystems and addressing the root causes of degradation.

### CAMEROON



National School of Water and Forests students working in a non-timber forest product and bamboo nursery established by TRI Cameroon © IUCN

#### OUTCOMES

TRI in Cameroon exemplifies how FLR activities can address deforestation, biodiversity loss, and climate change while improving local livelihoods. With its diverse biomes, including mangrove belts, forest ecosystems, and dry savannah zones, Cameroon has been under increasing threat from habitat destruction, land conversion, and CO<sub>2</sub> emissions. TRI in Cameroon aimed to reverse degradation and deforestation across three key landscapes—Waza, Douala-Edea, and Mbal-mayo—by utilising FLR initiatives like agroforestry and adapting strategies like identifying strategic areas for bamboo and non-timber forest product (NTFP) plantations despite the challenges of operating in diverse and sometimes insecure environments. **TRI in Cameroon achieved significant progress, including the restoration of 825 ha of degraded land, the improved management of 17,571 ha, and the direct removal of 244 thousand tons of CO<sub>2</sub> emissions.**

*TRI in Cameroon achieved significant progress, including the restoration of 825 ha of degraded land, the improved management of 17,571 ha, and the direct removal of 244 thousand tons of CO<sub>2</sub> emissions.*

## INTERVENTIONS

### 1. Identify strategic areas for bamboo and NTFP plantations

TRI in Cameroon identified strategic areas for bamboo and NTFP plantations to rehabilitate degraded ecosystems. Twelve nurseries producing and distributing over 737 thousand seedlings and plants, including 165 thousand bamboo, 415 thousand NTFPs, and 57 thousand mangroves, supported TRI in Cameroon's efforts to restore critical habitats such as the mangroves in Doula Edea and the degraded forest margins in Mbal-mayo. The project focused on planting bamboo and indigenous NTFPs like bush mango (*Irvingia spp.*) and njangsa (*Ricinodendron heudelotii*) in these areas **instead of non-native species that might present challenges related to invasiveness (Principle 4)**. This helped improve ecosystem functionality by enhancing biodiversity, preventing soil erosion, and contributing to water retention. GIS mapping allowed the project to track and target restoration areas effectively, ensuring that efforts were well-suited to the specific **needs of each landscape, resulting in sustainable outcomes for both nature and the communities (Principle 4)**.

### 2. Implement agroforestry systems

To foster long-term sustainability, TRI in Cameroon implemented agroforestry systems that integrated the abovementioned bamboo and NTFPs into local farming practices. By working closely with local communities, TRI in Cameroon provided training and support to help farmers establish agroforestry plantations, focusing on **maximising land productivity while improving ecosystem services**. These agroforestry systems contributed to land restoration and provided

communities with a diversified income through sales. The project team in Cameroon facilitated value chain development and market analysis for bamboo and four selected NTFPs to help the local community with sustainable financing. One hundred sixty-one best-performing plantations were then registered through the Ministry of Forestry and Wildlife (MINFOF); **these plantations became privately owned, giving local stakeholders a direct economic incentive to maintain and expand their efforts, putting these areas under conditions that minimise the impacts of harmful anthropogenic activities (Principle 5)**.

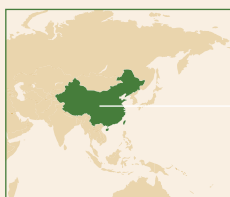
### 3. Promote sustainable charcoal production from *Bambusa* spp

Lastly, TRI in Cameroon promoted sustainable charcoal production from *Bambusa spp.*, a fast-growing native species ideal for restoration and sustainable energy production. By focusing on bamboo's carbon-sequestration abilities, **the project reduced the need for deforestation while producing sustainable charcoal, thus mitigating CO<sub>2</sub> emissions (Principle 5)**. Additionally, TRI in Cameroon focused on empowering women by supporting women-led agroforestry and NTFP value chain development. In the Waza landscape, establishing bamboo processing facilities and introducing improved tools like a neem oil press machine for a women's association led to a 40% increase in neem oil production and income. This focus on women-led activities boosted community resilience and ensured that restoration efforts provided tangible economic benefits, **reinforcing the link between giving benefits to both nature and humans (Principle 4)**.



Mangrove plantation in the Douala-Edéa forest landscape © IUCN

# CHINA



Field trip in Jiangxi pilot province © IUCN

## OUTCOMES

TRI in China stands out for achieving significant restoration targets across multiple environmental indicators, particularly in carbon removals and GHG emission reductions. This achievement came about by shifting the forest management approach, which has traditionally focused on increasing tree quantity through monoculture plantations, to improving the quality of SFFs that cover 8 per cent of China's total land area.<sup>23</sup> These large-scale reforestation and sustainable forest management (SFM) initiatives simultaneously mitigated environmental impacts and enhanced socio-economic resilience. As a result, **TRI in China successfully mitigated 6.1 million tons of direct CO<sub>2</sub> emissions and 8.3 million tons indirectly—both exceeding the project targets.** In addition, 229,831 ha of land was brought under restoration, also reported as the area brought under improved management practices as TRI in China implemented its interventions in SFFs that are intensely managed and in and of themselves always considered as such. **An overarching strategy of TRI has been identifying strategic areas for forest restoration and management to improve water retention, reduce soil erosion, and increase biodiversity (Principle 5).**

*TRI in China successfully mitigated 6.1 million tons of direct CO<sub>2</sub> emissions and 8.3 million tons indirectly—both exceeding the project targets.*

## INTERVENTIONS

### 1. Identify strategic areas for forest restoration and management

The first element of the strategy adopted by TRI in China has been a tailored approach to FLR, **focusing on local conditions but still considering the country's national '30-60' decarbonisation goals**<sup>24</sup>. To achieve this, TRI in China innovatively applied the ROAM across critical landscapes in Bijie City, Xinfeng County, and Fengning County. By

<sup>23</sup> <https://iucn.org/story/202212/restoration-initiative-china-story>

<sup>24</sup> '30-60' decarbonisation goals is a commonly used phrase to describe China's ambitions to peak its carbon emissions by 2030 and become carbon neutral by 2060, announced in 2020. Ministry of Foreign Affairs of the People's Republic of China. (2020). 'Statement by H. E. Xi Jinping President of the People's Republic of China at the General Debate of the 75th Session of the United Nations General Assembly'. Available at: [https://www.fmprc.gov.cn/mfa\\_eng/zxxx\\_662805/t1817098.shtml](https://www.fmprc.gov.cn/mfa_eng/zxxx_662805/t1817098.shtml). (Accessed: 30 October 2024).

adopting replicable forest management models localised at the city, county, and farm levels, TRI ensured that restoration efforts were scientifically informed and aligned with local socio-ecological needs.

## 2. Tailor FLR approaches to local conditions

TRI in China utilised these pilot projects to enhance and refine management plans across the country's SFFs, whose numbers stand at 4,297. In doing so, the team assessed the increased economic value of ecosystem services, laying the foundation for national eco-compensation mechanisms, including PES and other subsidies. 6 out of 7 pilot SFFs included in TRI in China have successfully developed bankable proposals to support the green and sustainable development of local government and, to a lesser extent, private sector while conducting environmental and social risk management to maximise the positive impacts of the restoration activities. This comprehensive approach underscored the importance

of combining **ecological restoration with socio-economic development, setting a powerful example for large-scale restoration efforts.**

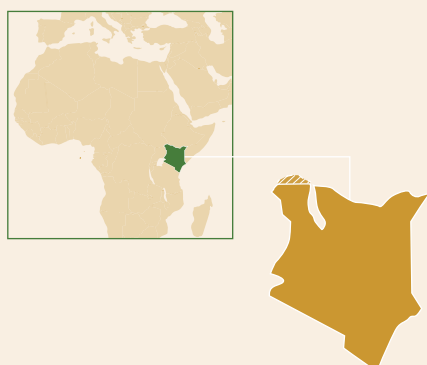
## 3. Expand the management focus of SFFs

The last component of China's success stems from the project's **ability to expand the management focus of SFFs, which was primarily timber production, to a more balanced approach that prioritises all ecosystem services (Principle 4).** This was possible due to the project team's continued advocacy for SFM by leveraging FLR-based Innovative Forest Management Restoration Plans. The strong support from the National Forestry and Grassland Administration (NFGA) has also been instrumental in TRI in China's ability to develop policy recommendations such as the *Roadmap for Carbon Sequestration and Carbon Accounts*. These efforts ensured that restoration activities contributed to China's broader environmental goals, including decarbonisation and ecological compensation systems.



Provincial coordinator introduced local achievements at the exhibition © IUCN

## KENYA ASAL



Cabinet Secretary Visit to project site © FAO

### OUTCOMES

TRI in Kenya ASAL has been instrumental in addressing the dual challenges of environmental degradation and community vulnerability. This has **benefited nature and people (Principle 4)** in a region marked by increasingly frequent droughts, considerable land degradation, and deforestation.

The project has managed to bring a combined total of **2,408 ha of land under restoration and 193,931 ha under improved management** in the *Mukogodo Forest*, one of the few remaining dry

forests in the country, and the Mount Kulal Biosphere Reserve, a hotspot for biodiversity. Working with these diverse landscapes, TRI in Kenya ASAL **identified strategic areas for restoration and sustainable land management through participatory ROAM assessments**, implementing **a wide range of restoration interventions (Principle 3)** to reverse the degradation of ecosystems that provide essential services, such as water retention, soil stabilisation, and biodiversity conservation, which are **vital to both the environment and the local communities**.

*2,408 ha of land under restoration and 193,931 ha under improved management achieved as of June 2024*

### INTERVENTIONS

The wide range of ecosystem restoration activities in the form of FLR interventions that TRI in Kenya ASAL adopted comprised (a) watershed protection and erosion control, (b) grazing plans, and (c) sustainable land management.

#### 1. Watershed protection and erosion control

Faced with the acute risk of droughts, one FLR intervention TRI in Kenya ASAL focused on has been **watershed protection and erosion control, with**

**the strategy of implementing innovative technologies such as half-moon micro-catchments—semi-circular bunds of red soil designed to prevent water runoff.** These bunds help rainwater seep into the ground, improving moisture retention for crops and livestock in drought-prone areas. In 2023, TRI in Kenya ASAL supported the construction of 3,700 micro-catchment bunds over 46.2 hectares in the Mukogodo Forest Reserve. This initiative, which involved multiple stakeholders, also

**fostered social cohesion**, as communities agreed to restrict grazing in the restored areas for up to two years—a practice known as *social fencing*. Furthermore, beneficiaries noted the plans to replicate semi-circular bunds and disseminate knowledge amongst their communities, honing the potential for long-term change.<sup>25</sup> **This collaborative approach also helped eradicate land uses that hinder the long-term sustenance of restored landscapes in the region (Principle 5).**

## 2. Grazing plans

Another FLR initiative adopted by the TRI Kenya ASAL team has been to produce **grazing plans to enhance the protection of restoration sites**. This approach supported livestock farmers, particularly during the dry season when resources were scarce. By implementing grazing plans, re-seeding grasslands, and promoting hay production, the project ensured fodder availability for over 3,000 people and their livestock. In 2022, TRI facilitated the establishment of 49 hectares of hay farms, where indigenous trees were planted to

further bolster the landscape's resilience. These combined efforts protect restored areas and provide vital socio-economic benefits.

## 3. Sustainable land management

The final initiative implemented by TRI in Kenya ASAL focused on **sustainable land management (Principle 5)**, with a strategy centred on supporting women-led income diversification activities such as **horticulture, beekeeping, and sustainable agriculture**. This approach aimed to enhance community well-being while reducing pressure on natural resources. By promoting sustainable livelihoods like honey production and NTFPs, TRI provided alternative income sources for the communities. In the Mukogodo Forest, the honey value chain was particularly successful, with community members trained in sustainable honey production and value addition. This initiative contributed to forest conservation and delivered economic benefits, demonstrating the FLR principle of providing multiple functions and benefits across landscapes.



Vallerani method of restoration, Kenya ASAL © FAO

25 <https://iucn.org/story/202310/restoring-degraded-lands-kenya-through-community-led-techniques-and-approaches>



## TOWARDS SUSTAINABILITY OF INTERVENTIONS

To ensure the longevity of its restoration interventions, TRI has integrated and highlighted the role of policy development, financial mechanisms, and community benefits into its landscape approach. This approach aligns with the UN Decade's Principle 5, emphasising stakeholder cooperation and sustained, shared commitment to landscape management. TRI's policy cycle work establishes supportive legal and regulatory frameworks that empower local stakeholders and national governments to continue and expand sustainable practices post-intervention. For instance, TRI collaborates with local governments to embed restoration goals into regional policies, ensuring that these areas receive continued institutional support, even after the project phases out. Moreover, TRI has introduced financial mechanisms designed to provide ongoing resources for restoration and management. In Kenya, for example, TRI conducted a value chain analysis of NTFPs such as gum Arabic, aloe, and honey. By address-

ing value chain gaps and creating market access strategies, TRI has turned local products into viable income sources, giving communities a financial incentive to sustain restored areas. These financial mechanisms and capacity-building efforts support communities in maintaining economic resilience through ecological stewardship. Finally, by directly benefiting people, TRI has established local ownership over restored areas, fostering sustainable landscape management that benefits both nature and local livelihoods. TRI has empowered local actors through partnerships with community organisations with skills, resources, and structures for long-term land stewardship. Together, these elements ensure that TRI's landscape restoration efforts endure beyond initial project timelines, promoting ecological resilience, biodiversity conservation, and lasting socio-economic benefits across restored landscapes.

*South Kivu. © FAO/Benjamin DeRidder*



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