COMBIO project proposal – Final Draft V1

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0. BASIC PROJECT INFORMATION

2. **Project name**: Reducing vulnerability to climate change through enhanced community based biodiversity conservation in the Eastern Province of Rwanda (COMBIO).

3. **Applicant**): Rwanda Forestry Authority (RFA)
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5. **Country/ Region**: Eastern Province of Rwanda

6. **Sector(s)**: Forestry, Biodiversity, Climate change adaptation

6. **Main objective:** Contributing to climate change mitigation and adaptation through enhanced community based biodiversity restoration and conservation in the Eastern Province of Rwanda

7. **Outcomes:**

   Outcome 1: Restored, enhanced, and protected biodiversity for increased climate resilience in productive and protective landscapes

   Outcome 2: Improved livelihood of community through biodiversity-based enterprises and developed value chains

   Outcome 3: Strengthened and coordinated community based knowledge and National monitoring systems for biodiversity conservation

7. **Tentative budget**: 7,897,531.59 Euros

8. **Tentative time period**: January 2022 – December 2027

1. RATIONALE

1.1. The climate change impact and biodiversity in the Eastern Province

The Eastern Province covers an area of 9,813 km² (37.2% of country's territory) and includes seven districts: Bugesera, Ngoma,Kirehe, Rwamagana, Kayonza, Gatsibo and Nyagatare). The province is characterized by diverse ecosystems including savannah, swamps and montane, moreover the Akagera National Park is located in the province. The Province is the most populated in Rwanda with an estimated 3,051,454 people (24% of total population est. 12,663,116) in 2020[1]. One third of this population lives in poverty (37%) and 15% live in extreme poverty [2].

A vulnerability analysis show that the Eastern Province is the most vulnerable area in Rwanda to climate change, despite the fact that it serves as the 'bread basket' of Rwanda with the largest share of arable land, therefore critical to the country's food security yet the poor are particularly vulnerable to natural hazards like flooding and drought. This province is characterized by observable climate impacts, including a high frequency of rainfall deficit, late rainfall onsets, early rainfall cessations and a significant number of dry spells. The most rainfall deficit risk districts in the Eastern Province include Bugesera, Nyagatare, Gatsibo, Kayonza, Ngoma and Kirehe. Prolonged droughts tend to be cyclical and can be persistent. Droughts are often responsible for famine, food shortages, a reduction in plant and animal species and displacement of people in search of food and pasture. Demographic pressure associated with high demand for wood products and other human activities constitutes the main cause of reduction of the vegetation and tree cover causing soil erosion and land degradation, further exacerbated during rain seasons. Prolonged droughts are also frequent in the east and southeast and tend to be cyclical and persistent. Climate change impacts have led to conflicts over different land uses such as protected areas, for instance forcing livestock herders to move livestock into Akagera National Park during the dry season (Chemonics International, 2003).

The Eastern Province of Rwanda is prone to a high level of degradation leading to poor land productivity. Increased frequency and magnitude of recurrent droughts and floods, and more erratic precipitation, both caused by climate change and deforestation, are resulting in degraded lands, increases food insecurity levels for poor households negatively impacting their livelihoods, and loss of biodiversity. The National Climate Change Vulnerability Index defines the Eastern Province with the highest levels of vulnerability in the country due to the high sensitivity and low adaptive capacity of the population to address climate change.

Climate projections show that climate change will have an increasingly serious effect on the Eastern Province in Rwanda, largely as a result of rising temperatures and changing patterns of precipitation. The mean rainfall is predicted to increase by between 0.1 and 1.24 mm per year, except during the short rainy season (Mid-September -Mid-December), showing a marked decline of between 0.412 and 1.65 mm per year. Temperatures in the Province have already increased 2.6 °C over 1961-2016[3] and are projected to increase a further 2.5 °C by 2050[4], up from the 1970 average. Temperature rise will increase

evapotranspiration, resulting in increased crop water requirements and reduced soil moisture capacity. The combination of increased temperatures for longer periods and decreased rainfall especially in the short rainy season, makes the Eastern Province highly exposed to more dry spells with up to 7 days by 2050 [5], [6]. There will be even greater unevenness in rainfall distribution, and more extremes in rainfall volumes and water deficit prolonged agricultural droughts during the dry season is projected [7]. Climate change, particularly dry spells and rainfall erosivity will exacerbate many of the ongoing land degradation processes in the Eastern Province leading to increased soil erosion (80% caused by rainfall) and further degradation[8].

The Restoration Opportunities Assessment Methodology (ROAM) analysis in 2015 estimated approximately 37% (374,130 ha) of the territory of the Eastern Province as degraded and alone is responsible for approximately 21% of the soil erosion in the country [9]. Since much of the Province is located on slopes (up to 55% inclination) it is estimated that climate change will introduce new degradation pathways through soil loss [10]. The impacts of climate change on agriculture and surrounding ecosystems is projected to result in serious socioeconomic implications for the 3 million people living in the Eastern Province. Economic models suggest that Rwanda could lose over 1% of its GDP each year due to climate change related losses by 2030, and an even greater proportion thereafter [11]. Drought scenarios show estimated total monetary losses for the Eastern Province from crop loss and damage to be in the range of USD 2 million and USD 7.5 million respectively per year [12]. Smallholders will be the most affected group due to their lack of assets to buffer shocks and limited access to the information, new technologies, finance and government services needed to undertake adaptive actions. In response to these climate change threats, integrated adaptation measures are needed to enhance the resilience of the landscape in the Eastern Province, which will sustain the agricultural production and enable sustainable growth of the region in a manner that reduces poverty, increases resilience and achieves food security.

1.2. The TREPA project intervention

The project entitled "Transforming Eastern Province through Adaptation to climate change" abbreviated as TREPA project is a six years multi-stakeholders project that will be implemented starting 2022 by IUCN as an accredited entity, Enabel, IUCN Rwanda Office and Rwanda Forestry Authority (RFA) as the leading executing entities. The total project budget is USD 49,622,797 with GCF contribution of USD 33,783,755 and USD 15,839,042 co-financing from different stakeholders. The main objective of the project is to achieve a paradigm shift in land management practices in Rwanda's Eastern Province from landscapes that are degraded, fragile and unable to sustain livelihoods in the face of climate change to restored ecosystems and landscapes through building community resilience to enhance livelihoods, food and water security of the most vulnerable rural population. The project components that will result in the achievement are:

Component 1: Restored landscapes that support climate resilient agro-ecological systems and livelihoods in Eastern Province, through the support of:

- ✓ The agroforestry/fruit tree planting and dissemination of agroforestry technics on 40,000 ha of crop lands exposed to land degradation
- ✓ The restoration and sustainable management of 6,545 ha of small-holder private woodlots and of 10,700 ha of public productive forests; The silvopastoral tree planting and design and implementation of silvopastoral plans on 10,000 ha of extensive ranching areas; The restoration of native forest on 400 ha of Akagera buffer zone, and establishment of 1,400 ha of protective plantation on the side/shore of road/rivers;
- ✓ The dissemination of Improved Cooking Stove (ICS) in the 100,000 farmer's households targeted by the above restoration measures.

Component 2: Market and value chain development for climate resilient agricultural and tree products linked to financial products and services for sustainable management of agro-ecological systems, through:

- ✓ The establishment and capacity building of farmers groups organization, cooperatives and community vigilance committees;
- ✓ The development of agroforestry and forestry products value chains;
- ✓ The development of saving groups and of microfinance products to facilitate the access to finance for targeted farmer group organizations.

Component 3: Strengthened enabling environment to effectively plan, manage and monitor climate adaptation outcomes from improved land use at national and decentralized levels, through:

- ✓ The enhancement and alignment of planning tools and design and integration of land scape restoration and forest management plans;
- ✓ Enhancement and coordination of knowledge and information systems for decision and negotiation support;
- ✓ Enhancement of seed and seedling supply systems to provide diverse climate adapted species and varieties;
- ✓ Generation and dissemination of knowledge and evidence from best practices.

The TREPA intervention focusses on the restoration of productive land areas owned by small holder farmers, with little consideration for biodiversity restoration and conservation in the area of intervention (except the 400 ha of Akagera buffer zone). On the productive land, the project will support the diversification of the agroforestry and silvopastoral species and varieties, by focusing on exotic and native species which are providing increased and diversified incomes to farmers. The project is expected to reach out 1,220,582 people (or 40% of the of the target population of the Eastern Province) comprising 556,352 direct beneficiaries and 664,057 indirect beneficiaries in the target Eastern Province.

1.3. The need to enhance biodiversity to support climate change adaptation

Rwanda is well- known for its rich biodiversity. Despite its small size of 26,338 km2, the country is covered by diversified ecosystems consisting of protected natural reserves, gallery forests, savannahs, agro-ecological systems, wetlands and other aquatic ecosystems. These ecosystems accommodate a great diversity of flora and fauna wealth. These ecosystems provide a wide range of services and they notably contribute to the resilience of local communities to climate change. In particular, protected ecosystems in Rwanda offer a wide range of benefits and opportunities for local and national economic development, improved livelihoods and provision of environmental goods and services. For example, Rwanda's tourism is largely dependent on maintaining biodiversity. It is the country's top income earner of foreign exchange generating $635.9 million in 2019 from 1.63 million international visitors.

In addition, it is widely recognized that climate change and biodiversity are closely interconnected. Biodiversity is affected by climate change, with negative consequences for human well-being, but biodiversity, through the ecosystem services it supports, also makes an important contribution to both climate-change mitigation and adaptation. Consequently, conserving and sustainably managing biodiversity is critical to addressing climate change.

The importance of biodiversity for the country is evidenced by several national policies, and strategies as well as international conventions on biodiversity which Rwanda has signed and ratified. For instance, the national framework for the conservation of biodiversity included in the Rwanda Vision 2050 which sets a path for Rwanda to become a high income, green and climate resilient economy; the National Strategy for Transformation; the Green Growth and Climate Resilience Strategy; the Wildlife Policy and National Biodiversity Policy. These policies emphasize that Rwanda's viability will depend on the conservation of its biodiversity to contribute to livelihoods, food security, health, the environment, cultural diversity and the economy.

At the international scale, Rwanda has committed to addressing biodiversity loss, food insecurity and health issues by committing to the Convention on Biological Diversity, the Paris Agreement and the UN Sustainable Development Goals (SDGs). The objectives of reducing biodiversity loss and promoting their sustainable use are included in SDGs 14 and 15. Biodiversity loss negatively affects other SDGs including those related to good health and well-being, climate change mitigation and adaptation, ecosystems restoration, clean water, zero hunger, no poverty, sustainable cities and communities, clean energy, and sustainable production.

Therefore, Rwanda has taken several tangible actions to address issues related to biodiversity loss, food security and human well-being through environment and natural resources management, disaster risk reduction and management, climate change adaptation, restoration of fragile ecosystems, forest landscape restoration, afforestation, agroforestry, biodiversity financing, livelihoods improvement, job creation, innovative and green finance, access and benefits sharing of genetic resources, as well as environmental mainstreaming in sectoral policies.

Despite the country conservation efforts, the ecosystems hosting the biodiversity are experiencing threats from climate change effects including floods, droughts and landslides mainly as a consequence of high pressure and unsustainable use of natural resources. Human activity has been also changing the natural ecosystems through agricultural and industrial development, and human settlement, over-exploitation of certain species and the introduction of alien invasive species. Therefore, human and climate change impacts on ecosystems have resulted in habitat loss and degradation, the loss of some species and ecological processes, pollution of the soil, water and atmosphere. This leads to the degradation of natural ecosystems and thereby reducing their capacity to provide ecosystem services, and increasing the vulnerability of local communities to the effects of climate change.

Towards addressing the climate change impacts on ecosystems, restoration interventions of degraded lands and vulnerable ecosystems have been implemented in various places across the country. The restoration activities are still needed to assist the recovery of degraded ecosystems to sustain its biodiversity and re-establish its ecological functions, putting the emphasis on the increasing biodiversity in restored landscapes. These activities will also contribute to the improvement of the livelihoods of communities by adopting appropriate measures to mitigate climate change impacts, thus contributing to the conservation of biodiversity and increasing the ecosystem services.

The ecosystems based approaches have generated significant social and economic benefits to local communities, by protecting them from climate change and extreme weather events. Nevertheless, additional measures are required to reduce the adverse impacts of projected climate change in the near and long term. The vulnerability to climate change will be exacerbated by other stressors, including the further loss of biodiversity, damage to ecosystem services, and land degradation. Adaptation will be increasingly important to enhance protection and management of protective and productive ecosystems. Adaptation activities to climate change will have positive impacts on biodiversity through: maintaining and restoring natural ecosystems, protecting and enhancing ecosystem services, actively preventing and controlling invasive alien species, managing habitats for threatened and endangered species, and developing agroforestry systems. Reduction of other pressures on biodiversity arising from deforestation, habitat conversion, overexploitation of forests and other natural ecosystems, pollution, and alien species invasions will also contribute also to climate change adaptation measures.

Enhanced protection and management of protected natural reserves, productive forests, agro-ecological landscapes, marshlands and aquatic ecosystems needs to be a critical part of adaptation strategies. Biodiversity conservation in these ecosystems will play an important role in protecting biological resources and reducing vulnerability to climate change. Maintaining intact protected natural reserves and galleries and selecting appropriate mixes of species for afforestation is likely to enhance their resilience to climate change, supporting their contribution to both mitigation and adaptation. Conservation actions will target

to maintain a range of native species and habitats across areas designated for both protection and production. Protected natural reserves for biodiversity conservation will be complemented by off-reserve management such as buffer zones, natural sancta and agroforestry systems.

Sustainable agricultural practices, incorporating new varieties of crops and multipurpose trees/ shrubs and herbs, are likely to be essential in maintaining food production under changing temperature and water conditions. Good agriculture practices are needed to maintain agrobiodiversity. They include water and soil conservation, and agroforestry and are likely to play a major role in agricultural adaptation, particularly in the semi-arid areas of Rwanda where water deficit and soil organic matter are critical to food production. Agroforestry, intercropping food crops with multipurpose trees and shrubs, has been identified as a promising option to improve resilience of agricultural systems to climate change.

Marshlands and aquatic ecosystems are some of the most threatened ecosystems, yet they provide many vital ecosystem functions including fisheries, crop production and freshwater. Actions to reduce degradation of watersheds, through reduced deforestation, afforestation, establishment of buffer zones and soil conservation are likely to lower vulnerability to drought and floods; and the maintenance and restoration of the water regulating services of wetlands are important for flood control. By increasing biodiversity across the range of ecosystems, it will be possible to create their connectivity to allow plant and animal species to adapt to climate change. Corridors of habitats within protected natural reserves and productive landscapes will provide opportunities for species to move and maintain viable populations.

2. THEORY OF CHANGE

2.1. Key biodiversity issues and barriers to be addressed

Although Rwanda is endowed with biodiversity and carbon stocks hotspot forests and has advanced in many aspects of mainstreaming and implementing climate resilient initiatives such as forest landscape restoration initiatives, biodiversity and its conservation, biodiversity integration in the initiatives come with various information, technical, and resources barriers and degradation challenges in Eastern Province as explained below;

Barrier 1: Landscape degradation and little consideration for biodiversity in forest landscape restoration initiatives

Until 2007, the country has lost about 64 per cent of its natural forests from 659,000 ha in 1960 to 240,747 ha in 2007. Current forest cover stands at 30.4 percent; consisting of 18.1 percent (130,850 ha) natural forests, 53.5 percent (387,425 ha) of plantations, 22.3 percent (161,843 ha) of wooded savanna and 6.1 percent (43,963 ha) of shrubs. The Eastern Province tree cover for natural forests accounts the least in the while country but dominated wooded savannah and shrubs and distributed uneven, forest regeneration is skewed and undiversified. Forest plantation is the Eastern Province is nonetheless significantly reduced compared to other provinces of the country except the city of Kigali. Although forests degradation has remarkably reduced from 2009-2019, Eastern Province has the highest deforestation rate countrywide, and during 2001-2012 the country recorded an annual rate of negative biodiversity index (of -2.49%). Forest degradation as a result of agriculture expansion, homogenization and poor agricultural practices, threatens biodiversity and the ability of an ecosystem to provide services to livelihoods and economic development.

For sustainable economic development, Rwanda has pledged to restore 2 million hectares of forests under Bonn Challenge of Forest Landscape Restoration initiatives, and the target has been achieved by 35 percent in 2020. Key Biodiversity Areas in Eastern Province including Akagera National Park and other remnant public forests are targeted areas for restoration and protection, but limited consideration for biodiversity restoration is eminent, and information for the type or amount of biodiversity restoration taking place in these areas is not available.

In addition to low afforestation and reforestation efforts in Eastern Province and landscape degradation, there is low species diversity in plantation forests i.e mostly agroforestry, *Eucalyptus spp.* and *Grevillea robusta* are dominant tree species planted. There are generally limited biodiversity germplasm including tree reproductive materials for restoration and conservation for future sources, and the genetic quality of germplasm is equally poor due to inbreeding and tree productivity exhaustion. There are no dedicated seed orchards or sancta to provide a variety of quality seeds for biodiverse plants for ecosystem restoration. For landscape and ecosystem biodiversity restoration efforts in dry and flood prone Eastern Province to reach fruition, climate resilient and adapted plant species should be promoted suiting different ecological habitats (e.g. marshlands, agricultural systems and in natural habitats) and should be incentivized.

Barrier 2: Lack of incentivization frameworks, monitoring mechanisms and financial inaccessibility for promotion of biodiversity conservation

As poverty is one of the key drivers of environmental degradation and biodiversity loss, positive impact arising from tourism revenue sharing program in areas where it has been implemented, has resulted in positive impacts for conservation. This therefore means that creation of similar incentives for communities would reduce threats to biodiversity conservation and actually increase adoption. Limited land resource with mountainous topographic landscapes in the country has led to adoption of integrated approach of forest conservation that focused restoration efforts on degraded sites as well as assisted forests regeneration, mitigating threats that lead to forest and land degradation. Agroforestry on gently sloping and flat lands, integrated with crop farming, afforestation of roadsides, on land that is on steep slopes for soil conservation; and protective forests established on river banks and lakeshores is adopted to restore forest landscape and services it provides. Due to limited land resource in the country where smallholder farming is commonly practiced on smaller farms (0.5 Ha) and is highly vulnerable to weather and climate related shocks, such as drought and irregular rains. The majority of small-scale farmers are indirectly incentivized to adopt exotic tree species that could be mixed their small parcel of crop systems, providing them with revenues in relatively shorter time, and energy resource for their daily life.
Exotic species are extensively and easily adopted by smallholder farmers include *Grevellia robusta* that provides source fuelwood for cooking and can be mixed with crop in small-scale farms. Fast growing species such as eucalyptus is dominant in plantation forests for their revenue generation in relatively shorter time and for its biomass productivity. Cultivation of large tracts of land and continued mass planting of exotic species may cause genetic erosion through invasion and colonization of ecosystems by agroforestry monospecies cultivation of eucalyptus, grevellia trees, and invasiveness of lantana and water hyacinth.

Although various approaches are being developed to assess the extent of impacts relating to loss of genetic resources and inform the development of appropriate measure to manage the situation. The Government of Rwanda has also adopted the FLR as a strategy of forest restoration that combines different interventions based on the location, terrain and needs of local communities (soil and water conservation, improved incomes/ food security, timber, fuelwood and cash income), but incentive mechanisms for adoption of bio diversification of landscapes and smallholder farmers' parcels by communities is required.
Result based incentives such as supporting development on nature based socioeconomic activities that promote biodiversity conservation and climate resilience would advance adoption of biodiversity conservation. Support to efficient biofuel energy production (charcoal value chain development) and consumption (Improved Cooking Stoves), development of NTFPs bio-resources enterprises (pharmacopeia, indigenous horticulture, Tree Reproductive Materials) and their market value chain improvement, and development of environment friendly ecotourism with recreational activities in biodiversity sancta would contribute to biodiversity conservation efforts and reduce pressure of overexploitation. Particularly the Eastern Province's large economic activities include agricultural and pastoralism activities and less of nature based enterprises and innovations exist.

Inaccessibility to financing opportunities by small scale farmer communities particularly for youth and women for biodiversity conservation initiatives is as well barrier. Although the national green fund

(FONERWA) has been established and the country has Biodiversity Finance Policy, Biodiversity Finance Plan (BFP), and the Biodiversity Finance Initiative (BIOFIN) but mechanisms and frameworks for communities to access funds for biodiversity businesses are lacking. Dependency on natural capital has demonstrated that integration of biodiversity in the country's economy is important for the economic prosperity, and that the Payments for Ecosystem Services (PES) is potential avenues to synergy for development-conservation particularly for small-scale landowners in the low-income tropics. Experiences form the Latin America suggest that farmers with larger asset bases, more diversified incomes, non-farm income, and better access to information and social networks tend to gain disproportionately from signing up for ecosystem service provision, while poorer, less flexible, and less connected households can be left out. The lack of updated and piloted national PES mechanisms and frameworks as well as modalities for benefit sharing limits smallholder farmers (who diversify their farms mixing food crops with agroforestry trees) potential to earn them additional income and financial benefits through selling carbon credits or other PES benefits.

For sustainability of the financing mechanism, a recovery mechanism for a proportional contribution to the biodiversity revolving fund are lacking. There is also an absence of coordinated monitoring and management mechanisms to sustainably incentivize and promote farmers for farm diversification by integrating climate adapted and resilient native and indigenous agroforestry trees. Establishment of community-based management, monitoring mechanisms and support enhancement of biodiversity for Climate Change adaptation and mitigation, gender mainstreaming, payment for ecosystem services, monitoring and evaluation plans and strategies to support enhancement of biodiversity for climate change adaptation and mitigation is a necessity for biodiversity conservation consideration in landscape restoration initiatives.

Barrier 3: Inadequate knowledge and technical capacity of communities and institutions for integration of biodiversity conservation

Inadequate biodiversity knowledge barriers refer to the limited information, awareness and understanding by communities about nature and biodiversity to sufficiently formulate an appropriate response to the current nature or biodiversity problem. Information availability is a key issue for biodiversity conservation, utilization and management. There's limited or no baseline assessment, data and information elaborating on threats and opportunities on the state of biodiversity for different ecosystem habitats in the Eastern Province. Information of locally available biodiversity resource information potential for socioeconomic use would stimulate entrepreneurship and innovation in substitute of overreliance on extensive agriculture and pastoralism activities with poor practices. For instance, promotion and introducing diversified locally and climate adapted multipurpose native species and varieties important for biodiversity in productive forest plantation landscapes. Limited research on impact of biodiversity on ecological functions in the Eastern Province is limited, contributing to little understanding ecosystem functionality and its socioeconomic benefits of the forest and farms diversification, creating barrier for biodiversity conservation efforts resulting in extinction of species and genetic erosion.

Inaccessibility of available information still challenges the uptake of biological utilization and biodiversity conservation efforts. For instance, available biodiversity conservation information is in some cases is either outdated and/ or inaccessible form to communities. Inaccessibility of the information is due to non-transcribed scientific information to community comprehensible knowledge and information reach to

community members, and language of transmission. Although scientific information is necessary for new information and knowledge generation, there's a need for updating the current available biodiversity information materials to linguistically be accessible to community users, to increase awareness.

Awareness e.g. campaigns in communities and schools for biological and biodiversity resources efficient use is unavailable, and traditional knowledge of important traditional biological resources such as indigenous medicinal plants and culturally valued bio-resources are depleting due to ignorance of the young population in synergy with degradation. Local communities and extension services provider have limited technical knowledge, capacity and skills to adapt solutions related to biodiversity conservation and landscape restoration. Apart from insufficient knowledge and information, communities, farmers and extensionists in Eastern Province lack the skills and capacity to integrate biodiversity in agroforestry systems, silvopastoral, and natural ecosystems for restoration

Traditional gender divides in roles and decision at household level in rural Rwanda mean that women have limited control over assets particularly on agricultural harvest and dairy incomes, weakening their adaptive capacity, increasing their vulnerability to shocks and stresses linked to climate change. Women's involvement in certain livelihoods is also limited by information available to them which limits their opportunity and ability engage in off-farm activities for income generation for financial voice at household. There's a need for information generation and dissemination for communities (especially youth, women and historically marginalized groups) to exploit biological resources in equitable manner, for development-conservation purpose.

2.2. The COMBIO overall strategy

The scheme below provides a summarized overview of overall strategy of the COMBIO theory of change.

Objective: Contributing to climate change mitigation and adaptation through enhanced community based biodiversity restoration and conservation in the Eastern Province of Rwanda

Outcome 1: Restored, enhanced, and protected biodiversity for increased climate resilience in productive and protective landscapes

- **Output 1.1**: **Increased biodiversity in protected natural forests and community natural sancta:**
=> Design and implement management plans and action plans for protected natural forests with enhance regeneration and enrichment of native species
=> Establish community natural sancta to enhance biodiversity connectivity and serve as pillar for biodiversity based enterprises

- **Output 1.2**: **Enhanced biodiversity in productive forests and agro-ecological landscapes:** => Introduce diversified adapted multipurpose native species important for biodiversity in agroforestry, silvopastoral and forest lands restored with TREPA
=> Planting of native tree species for increased roadside biodiversity with establishment of community vigilance committees

- **Output 1.3**: **Restored and protected marshlands and aquatic ecosystems**: plantation of symbiotic species to restore biodiversity on buffer zones of rivers/lakes/wetlands and pilot control measures of invasive species.

- **Output 1.4**: **Reproductive material developed for biodiversity supportive species:** establish ex-situ gene bank for endangered native species and in-situ seed stands and orchards for multipurpose biodiversity supportive species (in collaboration with community sancta) and develop their seed treatment and seedling production protocols

Outcome 2: Improved livelihood of community through biodiversity-based enterprises and developed value chains

- **Output 2.1**: **Community preferred and profitable biodiversity based enterprises developed:** => Feasibility analysis of appropriate biodiversity based enterprises (indigenous fruit, horticulture and floriculture, medicinal, essential oil, ecotourism, apitourism, nurseries, handcrafts, etc);
=> Engage, organize, train and support (result based finance) community groups, including women, youth and historically marginalized, to perform selected biodiversity based enterprises

- **Output 2.2**: **Sustainable community based Biodiversity financing mechanism operationalized**: Establish biodiversity revolving fund (with FONERWA), including the piloting of Payment for Ecosystem Service (PES), the valorisation of generated carbon credits, and the incentive and reward to farmers for biodiversification

Outcome 3: Strengthened and coordinated community based knowledge and national monitoring systems for biodiversity conservation

- **Output 3.1**: **Developed community-based management and monitoring mechanisms to support enhancement of biodiversity:** integration and monitoring of biodiversity indicators in District action plans and reporting, and develop guidelines/ partnership framework for participatory management of biodiversity with local communities
- **Output 3.2**: **Enhanced awareness and knowledge in biodiversity conservation and sustainable use:** Assessment research on biodiversity status and impact on ecological functions, and support community educational and awareness program

Key Biodiversity Issues in regards to its support to climate adaptation and mitigation, and roots barriers and drivers

Degradant pressure on remnant protected natural forest due to the lack of appropriate participatory restoration/protection management plan engaging local communities. Dominance of only few farmers' preferred exotic tree species in crop, tree plantation and road side, with regression of native species, increasing pest and disease vulnerability. Rivers/lakes/wetlands banks degradation and colonization by invasive species due to inappropriate use and cropping/water management practices, Insufficient supply capacity for native species reproductive material	Lack of development of biodiversity based value chain and enterprises, due to scarcity and dispersion of biodiversity raw material resources and lack of capacity of local community (organizational, financial, skill for use and transformation of biodiversity based products) Farmers attracted by the most productive exotic species, lacking of financial incentive/compensation to integrate biodiversity supportive species and crop practices in their lands	Biodiversity actions not sufficiently integrated in different District planning and reporting Biodiversity indicator monitoring and reporting missing at district level and insufficiently developed at central level Government staff and community insufficiently aware on biodiversity opportunities and importance in regards to adaption to climate change. Evidence based of the impact of biodiversity on ecological function and adaption to the climate change insufficiently developed

2.3. The main objective

The main objective is to contribute to climate change mitigation and adaptation of ecosystems and population in the Eastern Province of Rwanda through enhanced community based biodiversity restoration and conservation over the protected and productive landscapes, while contributing to the green economy development.

The COMBIO intend to restore and sustain the biodiversity in the protected natural forests, while establishing new biodiversity sanctuaries and integrating diversified biodiversity native species in the productive crop/forest lands targeted by the TREPA intervention, to increase the geographic distribution of the biodiversity supportive areas and enhance ecosystem's biodiversity connectivity (outcome 1).

The enhanced biodiversity sustained over the landscapes will ensure a better adaption of productive ecosystems to pest and diseases and to drought, while improving their ecological function (pollination, water regulation, soil fertility, erosion control, carbon sequestration, etc.) and supporting the development of biodiversity based value chains and enterprises (green economy) diversifying the source of incomes for communities, with a special attention for women and youth.

To sustain the biodiversity integration in the production systems, the project will organize, train and equip farmer's groups for the development of viable nature based value chain and enterprises (ecotourism, nurseries, native fruit trees, essential oil, etc.), while establishing community revolving fund mechanisms to secure a financial rewarding of farmers who integrate biodiversity native species in their lands (outcome 2).

To enhance the appropriation of biodiversity and nature based solutions by communities and government agencies, district authorities will be supported in integration and monitoring/reporting of biodiversity indicators, evidence based research results demonstrating the positive impact will be disseminated and awareness campaigns and school education programs will be conducted (outcome 3).

2.4. The outcome, outputs and related activities

Outcome 1: Restored, enhanced, and protected biodiversity for increased climate resilience in productive and protective landscapes

Through the outcome 1, the COMBIO project will restore and enhance biodiversity with the integration of 20 tree/shrubs species over 12.700 ha of productive and protective landscapes distributed across the Eastern Province, extending the geographic distribution of biodiversity supportive areas and enhancing biodiversity connectivity over the different productive and protected ecosystems.

The project will contribute directly towards the 30x30 Post-2020 Global Biodiversity Target under the Convention of Biological Diversity, i.e. 'By 2030, protect and conserve through well connected and effective system of protected areas and other effective area-based conservation measures at least 30 percent of the planet with the focus on areas particularly important for biodiversity.' The 30% will incorporate all areas of particular importance for biodiversity, including the natural forests, the sancta and corridors targeted under the project, with steps taken to ensure habitat connectivity. As the global standard for effective area-based conservation, the IUCN Green List, the first global standard of best practice for area-based conservation, will both support the achievement of "30 x 30" and act as a simple indicator of progress.

To achieve it, following outputs are targeted:

Output 1.1. Increased biodiversity in protected natural forests and community natural sancta:

The Sustainable participatory management of protected natural forests and shrublands: **8 residual natural forest totalizing 3,102 ha** localized in Nyagatare, Bugesera, Ngoma and Kirehe Districts have been classified by the 2014 decree as residual protected natural forests under the responsibility of the Rwanda Forestry Authority (RFA), but until now did not benefit from special protection/restoration activities due to the lack of dedicated budget, and are not targeted by the foreseen TREPA actions. According to the forest law and prescription of the Forestry Sector Strategic Plan, the community based management of these forests has to be developed. This requirement will be merged with having the 8 natural forests formally proposed and registered under the IUCN protected area management categories (e.g. Category VI). IUCN protected area management categories classify protected areas according to their management objectives. The categories are recognized by international bodies such as the United Nations and by many national governments as the global standard for defining and recording protected areas and as such are increasingly being incorporated into government legislation. This categorization serves different purposes which include, but are not limited to: facilitating planning of protected areas and protected area systems; improving information management about protected areas; helping to regulate activities in protected areas; obtaining internal recognition and using the categories as a tool for advocacy.

This COMBIO intervention will support RFA in:

- ✓ The designing of subsequent implementation of participatory management plans and action plans for each of the 8 protected forests and their buffer zone, in collaboration with the local communities and authorities, with identification and feasibility analysis of all relevant protection/restoration measures;

- ✓ Facilitate studies and consultative workshops to prepare and subsequently submit the management plan, monitoring reports and other relevant documentation to apply for registration of the 8 natural forest under the internationally recognized IUCN protected area management categories, contributing to the 30x30 Post-2020 Global Biodiversity Target
- ✓ The establishment, where required, of fire-break and of natural protective fences on the borders, with clear signs;
- ✓ Undertaking control measures to fight against invasive exotic species (such as Lantana);
- ✓ The restoration of degraded natural forest/savanna through the support of the natural regeneration with enrichment (planting) of high biodiversity potential native species;
  The establishment (organization and training) of local Community Vigilance Committee with local protection brigades, to ensure day to day awareness, training, control (patrol) and management activities.
- ✓ Conduct a feasibility study to transform Mont Kigali, Rebero and Jali in Kigali from Eucalyptus forest to natural urban forests for biodiversity, enhanced ecosystem services, and for recreation.

Establishment of a network of community biodiversity connectivity sancta (7*5*20 ha = 700 ha): In the context of the TREPA project (component 1 and 3), local landscape restoration plans, district forest management plans and silvopastoral plans, in line with the District Land Use Plans, will be developed in collaboration with local actors and authorities. In this context, fragile and marginal areas to be managed under protection measures will be identified. Among them, priority ones the most opportune for the support of biodiversity connectivity will be selected, restored and established as community biodiversity sanctum by COMBIO project (on top of the 400 ha of Akagera buffer zone that will be restored by TREPA). In total 35 community biodiversity natural sancta (5 per district) of 20 ha each are targeted. This action, under the supervision of RFA, will be undertaken with the technical support of ENABEL considering their experience in community enrolment in forest resource management, for each of these biodiversity sancta, in collaboration with local communities and with the Centre of Excellence for Biodiversity and Natural Resources Management at the University of Rwanda (UR-CoEB), following key actions are foreseen:

- ✓ Establish, organize and train local community's groups, and design participatory community based management plans for the sanctum.
- ✓ The establishment, where required, of fire-break and of natural protective fences on the borders, with clear signs;
- ✓ The support of the natural regeneration with enrichment (planting) of climate adapted high biodiversity potential native species;
- ✓ The establishment of tree seed stands for climate change adapted native species with high potential for biodiversity and multipurpose use (see output 1.4);
- ✓ The development of nurseries for the supply of diversified quality seedling of climate adapted native species with high potential for biodiversity;
- ✓ The establishment of botanical/ pharmacopeia and essential oil garden and of indigenous fruits orchards with diversified tree/shrubs/herbs species, in collaboration with local tradi-patricians;
- ✓ Develop nature discovery and observatory circuit in sancta, train local guide, develop and set-up educational/vulgarization supports (illustrated explanatory board, etc.).

Output 1.2. Enhanced biodiversity in productive forests and agro-ecological landscapes

Introduce diversified adapted multipurpose native species and varieties important for biodiversity in 8000 ha of agroforestry and silvopastoral lands restored by TREPA: among the 50.000 ha of agroforestry and ranch lands to be restored by TREPA project (under the RFA responsibility), the COMBIO intervention will select 8000 ha of crop/ranch lands geographical well distributed and opportune for biodiversity support and connectivity, where farmer group's whiling and production system allow the sustainable introduction of diversified climate adapted native tree/shrubs species. The farmer's group established by TREPA will be supported in the planting of multipurpose species with high interests for biodiversity (at a density of around 20 tree and 40 shrubs per ha in average) and for which farmers will receive additional incentives for their adoption considering the lower productivity potential of some of these species.

In these 8.000 ha of crop/ranch land, farmer groups will be trained, within the existing Farmer Field School system, by local agricultural extensionists (specifically trained) and supported in the application of appropriate green smart agriculture practices (such as mulching, composting, inter-multi cropping with crop rotation, rain water retention and saving, etc.) that ensure the right incorporation of organic matter in the soil and enhance its biodiversity and fertility.

Introduce diversified adapted multipurpose native species important for biodiversity in 5 % of the productive forest plantation restored by TREPA: The TREPA project, with the support of ENABEL, will ensure reforestation of 1400 ha of public tree plantation and conversion of 6545 ha of small holder private woodlots into productive Private Forest Management Units (PFMU approach developed successfully by RFA/ENABEL FMBE project), that will be managed according to agreed simplified forest management plans by newly established cooperatives of grouped land owners. To secure financial viability of forest production, the small holder private owners' choice will be essentially focused on most productive species with capacity of coppicing, such as Eucalyptus spp. The intent of the COMBIO project is to integrate 10 biodiversity native tree species in at least 5 % of the restored areas (i.e. around 400 ha), through forest stand border demarcation tree planting and/or through integration of small groups on native species within PFMUs, depending of the offered land opportunities. These restored 5 % have to be geographically distributed to support biodiversity connectivity principles. The PFMU cooperatives established by TREPA will be supported in the planting of multipurpose species with high interests for biodiversity and for which farmers will receive additional incentives for their adoption considering the lower direct incomes generation of some of these species.

Planting of native tree species for increased biodiversity on the road side: on both sides of the main national and district road, the band of 10 to 22 m wide is owned by state, and is reserved for the protection of the road. In many cases these road sides are encroached by crops of neighboring farmers, and trees planted suffer from the pressure from local communities (for wood and for cropping), leading to a low growth rate tree/shrubs coverage. In addition, only few exotic species are commonly planted. The COMBIO project will ensure integration of 200 tree per km of native biodiversity supportive and multipurpose tree/shrub species on the sides of 500 km of main national and districts road over the Eastern Province (on top and in complementarity of the 700 km planned by TREPA, under RFA responsibility), to contribute to the biodiversity distribution and connectivity along road corridors. To sustain the maintenance of the planted biodiversity tree, road side community vigilance committees will be established and trained, signing participatory protection agreements with local authorities, following the model developed in Rwamagana by the RFA/ENABEL FMBE project.

The incentives/financial reward (result based payment) will be provided to farmers who integrate biodiversity supportive species on their crop/forest lands: this will be done through the community biodiversity revolving fund to be established under output 2.2., while seedling for multipurpose native species will be produced in supported newly established community biodiversity sancta (see output 1.1), based on reproductive material developed with the collaboration of the Tree Seed Center (see output 1.4).

The selection of site and species: For the overall outcome 1, the most opportune crop/forest land and road side to be targeted and tree/shrub biodiversity supportive species to be integrated will be selected based on biodiversity status and opportunity assessment (considering also the areas covered by TREPA) that will be undertaken at the inception phase of the project (see output 3.2). For private lands, the final choice of species to be integrated will be done in collaboration with sensitized farmer's groups.

Output 1.3. Restored and protected marshlands and aquatic ecosystems

The first action is to identify 400 km of priority rivers banks, lakes and marshlands shore where biodiversity will be restored to increase the water ecosystem's biodiversity connectivity, and identify suitable native species to be promoted. This assessment will be conducted in collaboration with the Centre of Excellence of Biodiversity at the University of Rwanda in the context of baseline biodiversity study to be undertaken under the output 3.2.

Support the natural regeneration and enrichment (planting) of native or biodiversity supportive symbiotic species (trees, shrubs, and herbs) in identified 400 km of river/lake/wetlands banks, in collaboration with local communities and neighboring farmers. To sustain maintenance of restored species, community vigilance committees will be established and trained, signing participatory protection agreements with local authorities.

Assess the current status and threat of invasive species (such as water hyacinth) for biodiversity and ecological functions of river and lake ecosystems, and participatory identification and design of possible control measures and action plans that can be easily implemented in collaboration with local communities and piloting most relevant control measures in selected priority river/lake areas seriously affected by invasive species, in collaboration with local communities, and assess results of the innovative methods.

Output 1.4. Reproductive material developed for biodiversity supportive species.

In complementarity with the action 3.3 of TREPA and in collaboration with the National Tree Seed Center, the COMBIO project will support the conservation, improvement and development of reproductive materials (seeds and seedlings) for endangered and most important multipurpose tree/shrubs species for biodiversity.

The Tree Seed Center, in collaboration with the of Centre of Excellence for Biodiversity (CoEB) and the gene bank of RAB, will be supported in identification and seeds collection and storage of the 20 most endangered biodiversity supportive tree/shrub species, most adapted to climate change.

To support the tree/shrub planting for biodiversity enrichment foreseen under above outputs 1.2 to 1.3, the tree/shrub stands (totalizing 100 ha) for seed supply and improvement will be established for

at least 30 multipurpose biodiversity supportive species most adapted to Eastern Province and to foresee climate change (drought). These stands will be distributed over the Eastern Province in collaboration with the most opportune biodiversity sancta newly established under output 1.1., and will be sustainably managed with their local community groups.

For selected important biodiversity species to be promoted and integrated in productive and protected lands, and for which the seed/seedling treatment and production protocols are not yet well known, adapted and replicable methods will be tested and developed. These methods will be disseminated and applied in biodiversity sancta, where champion community groups will be trained.

Priority species for which tree seed stands have to be established and/or for which seed treatment/propagation protocols have to be developed will be selected based on biodiversity status and opportunity assessment that will be undertaken with the UR-CoEB at the inception phase of the project (see output 3.2).

Outcome 2: Improved livelihood of community through biodiversity-based enterprises and developed value chains

This outcome focuses on enhancing the role of biodiversity conservation in improving the livelihoods of communities in the project area by developing biodiversity based enterprises and value chains that build on restored ecosystems and developed community biodiversity sancta from outcome 1. The outputs that will stem from the achievement of this outcome and related specific activities underlying the outputs are described below:

Output 2.1: Community preferred /acceptable and profitable Biodiversity based enterprises developed

The project will conduct participatory identification and feasibility analysis of appropriate biodiversity based enterprises. Potential biodiversity based enterprises include: establishment of commercial native TRM nurseries, indigenous horticulture (fruits, nuts, spices) and floriculture, medicinal and essential oil plants, handcraft, ecotourism, apitourism and other off-farm activities. Both quantitative and qualitative research methods will be used to profile the business opportunities for the priority identified biodiversity based enterprises in terms of investment and returns for the communities to start biodiversity based businesses. This activity will build on participatory appraisal for the selection of potential biodiversity based enterprises. The process will enable the determination of the existing resources in restored ecosystems, market potential, and profitability.

Appropriate sites for the development of biodiversity based enterprises will be mapped out in the project areas, while involving and taking benefit from the community biodiversity sancta established under outcome 1. About 35 sites (5 sites per district) across the Eastern Province will be supported to develop selected biodiversity based enterprises, which will combine conservation of biodiversity and value chains with sustainable livelihoods through engaging 35 community champion groups from community sancta. The project will create opportunities for the women, young people and historically marginalized people, to be able to participate at 60% in the biodiversity based enterprises and value chains development. It will facilitate the development of agreement between the communities and district authorities for running biodiversity based businesses which will secure sustainable livelihoods and address biodiversity conservation in natural reserves and community natural sancta.

The project will support the analysis and assessments of biodiversity based value chains to develop sustainable livelihoods packages in the project area. The results of the assessment will be used to secure enterprises in biodiversity based livelihoods. It will organize 35 community champion groups and

improve their business skills. A special focus will be given to building the organizational and technical capacity to perform selected biodiversity based enterprises and value chains development. The project will first examine the effectiveness and appropriateness of the groups for value chains development linking them to biodiversity conservation. Then the community champion groups will be trained on various organizational and marketing strategies such as collective action for marketing and financial options. Depending on the type of biodiversity based enterprise, strategies for linking community champion groups to markets will be participatory developed. In order to support and encourage community biodiversity based enterprises, the project will support community champion groups in acquiring required equipment and storage facilities through a result based finance approach. This is expected to stimulate the emergence of new biodiversity based enterprises.

Output 2.2: Community based Biodiversity financing mechanisms established and operationalized

This output intends to sustain and extent the community investment in biodiversity conservation action and continue to develop the biodiversity-based enterprises. For this, access to finance will be the most determining factor. The project will establish a Payment for Ecosystem Services (PES) fund in partnership with FONERWA as an incentive that targets communities to maintain biodiversity in protected natural reserves and community natural sancta.

The exact format and modalities of this Payment for Ecosystems mechanism will be explored and decided upon within the first 8 months of the project. Various options, or combinations of, will be considered such as:

- ✓ a fund through which incentives are paid to communities for positive biodiversity outcomes, e.g. incentive mechanisms and reward to farmers for bio diversification as a result of planting 1,080, 000 tree/shrubs on 8,000 Ha of agroforestry and 5% of tree plantation in the project areas.;
- ✓ through making available of credit (micro-finance/co-finance) for communities and/or private sector actors for biodiversity related businesses, and/or to encourage and support other positive biodiversity outcome activities by communities, e.g. forest restoration;
- ✓ setting up a mechanism for a proportional contribution to the biodiversity fund from established biodiversity based enterprises, and from fines resulting from illegal biodiversity related offences;
- ✓ in the form of channeling direct payments to communities/farmers resulting from carbon credit sales generated from the natural reserves, sancta and other biodiversity actions in the project areas.

The above will be directly embedded in the existing national environment funding mechanisms supported by FONERWA. The outcomes of the currently ongoing study, issued by REMA as part of the Biodiversity Finance Initiative (BIOFIN) Project in Rwanda, to develop a business case for the establishment of a new Biodiversity and Ecosystems Facility within FONERWA is of particular direct relevance. The COMBIO could support (establishing and financing) the above initiatives, while by project end FONERWA would ensure continuation of the PES schemes established under COMBIO.

Outcome 3: Strengthened and coordinated community based knowledge and National monitoring systems for biodiversity conservation

In the third expected outcome, the project aims to develop community-based management and monitoring frameworks by supporting mainstreaming biodiversity conservation in institutional and

community development strategies, programs and action plans. The project will as well support generation of biodiversity information and will increase community awareness for its sustainable use and participatory management. This outcome will support sustainable systematic consideration of biodiversity conservation in community and national planning of actions even beyond the project lifetime. To achieve the outcome, the following outputs will contribute to its realization:

Output 3.1: Developed community-based management and monitoring mechanisms to support enhancement of biodiversity for Climate Change Adaptation and mitigation

For adaption and assimilation of biodiversity conservation by communities and institutions, the project will design community-based biodiversity conservation management and monitoring mechanisms in the districts of the Eastern province. The implementation will extensively engage stakeholders including districts stakeholders, Joint Action Forces (JAF) to mainstream biodiversity within district development strategy and action plan (DDS, DDP). The project will identify institutional and community gaps relevant to the planning and implementation of the biodiversity restoration programs and plans in intervention area including community group organizations, stakeholders, civil society, technical staff for support. The project will support districts and community engagement for joint actions to determine biodiversity conservation goals and targets to be mainstreamed within districts and community specific development plans and strategies. Project activities will support technical designing and development of guiding manuals, partnership engagement modalities, participatory management plans and monitoring mechanisms for the restored biodiversity in component 1 and established biodiversity enterprises in component 2 for sustainability.

Interventions in this output will address recommendations of biodiversity climate-resilient planting materials adapted to climate changes impacts and for future mitigations. The project will develop a monitoring plan and systems to record the response of agroforestry, silvopastoral systems, and restoration and management of forests and monitor biodiversity in forests, woodlands, farmland/agroforestry systems. The biodiversity assessment (see 3.2) will contribute to the National Stock Taking and Assessment and to the country's data on the Global Biodiversity Information Facility (GBIF) as well as supporting the national biodiversity information systems under development by UR-CoEB.

Output 3.2: Enhanced awareness and knowledge in biodiversity conservation and sustainable use

In this output, the project will address inadequacy of information available on biodiversity and its conservation for use in the Eastern Province. Information generation and its dissemination are key proposed activities in this output that will respond to biodiversity restoration and community specific needs. Activities in this intervention will address knowledge gaps and loose linkages amongst biodiversity information institutions and knowledge dissemination channels for assimilation and translation of the information by user communities. Collaboration of research institutions with natural resource and environment extension service providers will generate knowledge relevant to addressing biodiversity specific needs that will promote good practices and scaling up of biodiversity climate-resilient strategies.

The project will *Conduct baseline assessment of biodiversity status of eastern province to identify opportunities and threats for the biodiversity conservation in the region.* The assessment will report on biodiversity change in both protective and productive areas will provide information on flora and fauna species of concern in the region to advise conservation and protection efforts as well as biodiversity information of socioeconomic value for conservation and use by communities. For the ecological

functionality conservation, the inventoried protected forests and wetlands for biodiversity will be complemented by biodiversity survey in remnant forests and in productive landscapes that have yet not been studied. The project will support study on biodiversity and the ecosystems that support it (economic value, status, trends and impact among others) to support decision making in the design and implementation of policies, programs and activities that can ensure their sustainable conservation and management. This includes knowledge and technologies on genetic resources particularly those important for the development for socioeconomic benefits. In this intervention, research on ecological function will as well be conducted to assess biodiversity implication on existing, restored and established ecosystems. The research will contribute to reporting on biodiversity indices. The project will support postgraduate research activities for the realization of this output and facilitate information dissemination by publishing 3 publications.

In regard to the community awareness support, a total of 35 community natural biodiversity sancta established under outcome 1 will serve as education facilities for youths and other communities in collaboration with local related schools. Environment clubs at elementary and high schools will use the gardens for hands-on experience exchange and biodiversity knowledge acquisition. Education programs such as "Connect to my nature" will be developed and be linked to biodiversity sancta. The beneficiaries of the training will include school teachers, students, children, youth, cooperatives, community and community leaders. The communities will participate in designing and developing program modules, the intervention will support field works involving youths (planting, garden/ nurseries maintenance, etc.), develop nature discovery and observatory circuit in sancta and train local guides. The intervention will conduct awareness campaign to promote biodiversity and increase knowledge of developed and established alternative indigenous plant species and their farming good practices to the communities.

The project will also support the awareness campaign on biodiversity results through campaign videos, news content and articles, policy briefs and scientific articles.

2.5. Beneficiaries

2.5.1. Direct beneficiaries

COMBIO Project will be aligned and complementary to TREPA -GCF funded project, focusing on creating biodiversity interconnections of the various ecosystems and landscapes of the whole Eastern Province. Therefore, the project is expected to directly benefit a total of 220,796 people (making 7% of the Eastern Province total population and 2% of the whole Rwanda Population), with 51% estimated to be females. These direct beneficiaries are mainly from the community groups to be established as follows:

- ✓ Communities surrounding the 3,102ha of protected natural remnant forests to be rehabilitated and enhanced with biodiversity enrichment include 8 cooperatives of about 200 household members on average for each i.e. 200x4.4 x8 =7,040 people
- ✓ Beneficiary groups/enterprises formed around and exploiting 35 community sancta to be established across the whole Eastern Province in a bid to restore the biodiversity interconnections will be 35 groups with 70 member households on average i.e. 35x70X4.4=10,780 people
- ✓ Beneficiary households which will be supported with biodiversity enhancement in agroforestry and silvopastoral lands for 8000ha, with a mean of 0.4ha of cultivated land per household, that is (8000:0.4) x 4.4= 88,000 people)

- ✓ Smallholder forests owners whose forests plantations will be restored and biodiversity enhanced through enrichment with native species (327 ha, with 10 PFMU cooperatives, 70 member households on average per each PFMU, that is, 10x70x4.4= 3,080 people)
- ✓ Community vigilance Committees involved in direct benefit-sharing scheme around the established biodiversity corridors and networks along the roadsides, buffer zones of lakes and river banks (900 km, 90 groups of 12 household's representatives per each group, that is 90X12x4.4 =4,752 people
- ✓ Smallholder farmer's/ land owners exploiting lands adjacent to biodiversity enhanced corridors/connections along roadsides and buffer zones (900km, 20 land owners per Km, that is 900 x20x4.4 =79,200 people)
- ✓ Other direct beneficiaries will include people who will directly benefit from works and labor, from nurseries establishment to planting, maintenance and guarding (restoration and biodiversity enhancement on 12,702 ha, with an estimate of 1person local casual labor per 2ha on a permanent basis, that is (12,702/2) x 4.4 = 27,944 people)
- ✓ Other direct beneficiaries will include the staff of MOE, RFA, Districts and Partners as well as individuals and consulting firms to be employed during the project implementation.

From the institutional perspective, COMBIO project will directly benefit the Ministry of Environment, with its affiliated agencies (RFA, REMA and FONERWA), 7 Districts of Eastern Province, UR/CoEB, as well as implementing partners of COMBIO and TREPA, namely Enabel, IUCN, ICRAF and ICCO.

2.5.2. Indirect beneficiaries

The project is expected to reach both directly and indirectly to at least 30% of the whole population of Eastern Province which will benefit from the biodiversity enhancement. That is the total population of EP (3,051,454) discounting the direct beneficiaries (220,796) which represent 694,640 indirect beneficiaries in the Eastern Province (ie [(3,051,454*30/100) - (220,796)]

At a national scale, it is expected that with the production and distribution of native species as well as other documented symbiotic functions enhanced, the adoption would upscale to at least 20 % of total population in addition to the direct and indirect beneficiaries of the Eastern Province in the next 10 years

Other

Gender

An extensive gender analysis study has been conducted for TREPA which is equally relevant for the proposed COMBIO project. A Gender Action Plan specifically for COMBIO will be developed, based on the one already developed for TREPA.

Environmental and Social Management Framework (ESMF)

An Environmental and Social Management Framework (ESMF) has been developed for TREPA which is equally relevant for the proposed COMBIO project. The TREPA ESMF covers:

- ✓ An analysis of the relevant policy and regulatory framework in Rwanda;
- ✓ Identifies gaps and implications for the project to ensure compliance with the IUCN Environmental and Social Management System (ESMS) and with the GCF Safeguard policies.

- ✓ It further identifies potential environmental and social risk issues at a high level, based on the generic project activities, including recommendations for avoiding or mitigating identified risks
- ✓ the procedures and steps to be taken for screening the sub-project on risks, for carrying out impact assessments and for monitoring risks during project implementation.
- ✓ The requirements for stakeholder consultation and outlines the project-level Grievance Mechanism. Implementation arrangements and the ESMF budget.

An assessment will be conducted to assess whether (sections of) the TREPA ESMP need specific tailoring for the COMBIO project.

3. SUMMARY BUDGET

COMBIO Project _ Summary Budget			TOTAL BUDGET (Euros)
1		**Outcome 1: Restored, enhanced, and protected biodiversity for increased climate resilience in productive and protective landscapes**	**4,148,667.00**
1	*01*	*Output 1.1: Increased biodiversity in protected natural forests and community natural sancta.*	*2,136,667.00*
1	*02*	*Output 1.2: Enhanced biodiversity in productive forests and agro-ecological landscapes*	*1,366,000.00*
1	*03*	*Output 1.3: Restored and protected marshlands and aquatic ecosystems*	*392,000.00*
1	*04*	*Output 1.4: Reproductive material developed for biodiversity supportive species*	*254,000.00*
2		**Outcome 2 : Improved livelihood of community through biodiversity-based enterprises and developed value chains**	**1,575,750.00**
2	*01*	*Output 2.1: Community preferred /acceptable and profitable Biodiversity based enterprises developed*	*1,001,250.00*
2	*02*	*Output 2.2: Sustainable community based Biodiversity financing mechanism established and operationalized*	*574,500.00*
3		**Outcome 3: Strengthened and coordinated community based knowledge and National monitoring systems for biodiversity conservation**	**724,100.00**
3	*01*	*Output 3.1: Developed community-based management and monitoring mechanisms to support enhancement of biodiversity for Climate Change Adaptation and mitigation*	*302,000.00*
3	*02*	*Output 3.2: Enhanced awareness and knowledge in biodiversity conservation and sustainable use*	*422,100.00*
Z		**General means**	**1,146,580.00**
Z	*01*	*Staff costs*	*550,280.00*

Z	*02*	*Investments*	*78,200.00*
Z	*03*	*Functioning costs*	*388,100.00*
Z	*04*	*Audit and Monitoring and Evaluation*	*130,000.00*
X		**Indirect costs**	***276,305.19***
X	*01*	*Overhead cost (7%)*	*276,305.19*
		Overhead cost IUCN	*119,057.19*
		Overhead cost ENABEL	*157,248.00*
TOTOL COST			**7,871,402.19**

4. IMPLEMENTATION MODALITIES

4.1. Key stakeholders

For the implementation of COMBIO Project, a multi-stakeholder approach is foreseen especially that the biodiversity project comes in complementarity and in alignment with TREPA project. The focal Ministry for the project will be the Ministry of Environment (MoE), while the Rwanda Forestry Authority (RFA), the Belgian Development Agency (Enabel), and the International Union for Conservation of Nature (IUCN) will lead the implementation of the project. Other implementing partners of TREPA, namely ICRAF and ICCO, will also play a role, depending on specific activities in alignment of TREPA. Also given the specific domain of COMBIO interventions, REMA, FONERWA, RAB, NAEB, RDB and the Center of Excellence for Biodiversity at University of Rwanda (UR-CoEB) will also play an important part on the technical and legal frameworks.

4.2. Institutional setting

In alignment with the already approved GCF funded TREPA project, it is proposed to have one coordinating steering committee for both projects, TREPA and COMBIO, in order to ensure strong synergies and complementarity of the two projects.

The Figure below illustrates the administrative set-up for COMBIO Project:

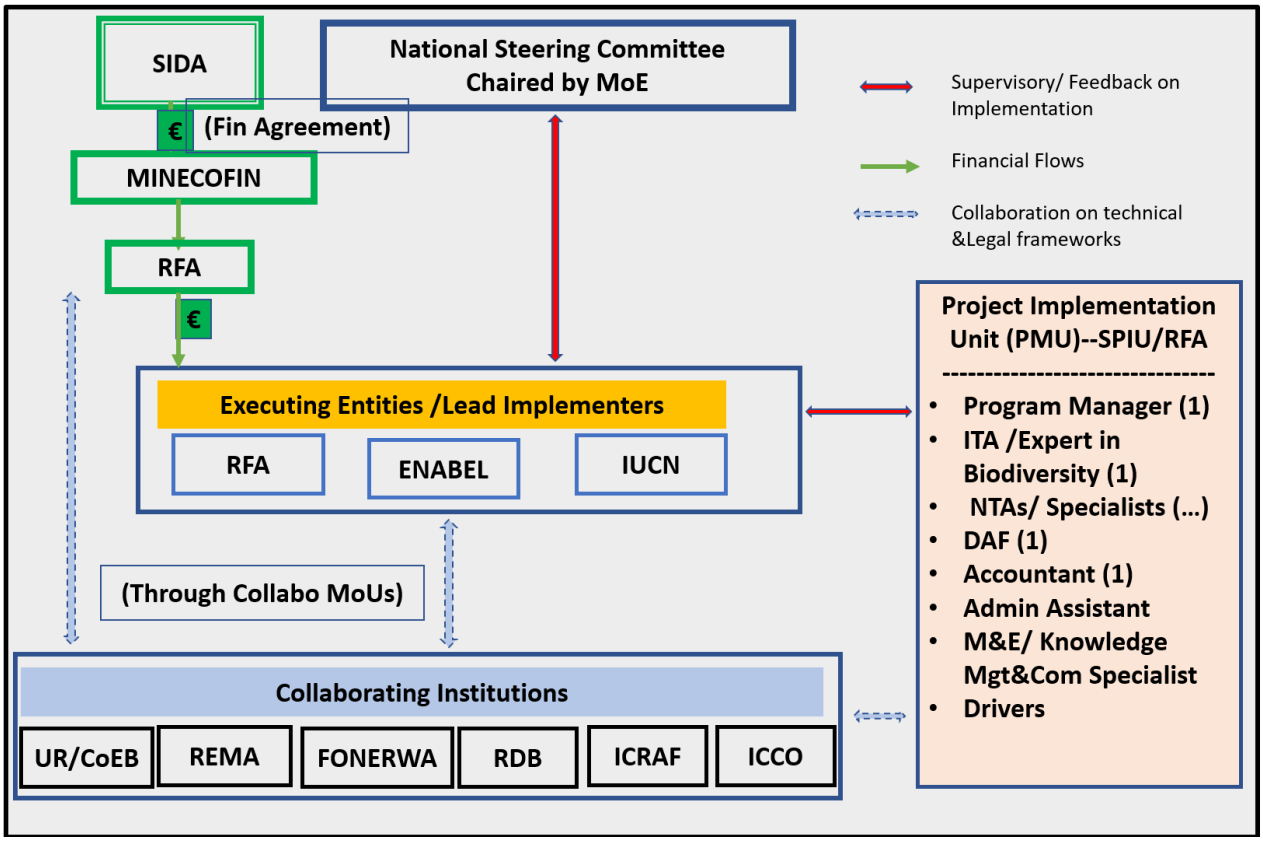

Figure 1: Organizational set-up for COMBIO Implementation

The National Steering Committee (NSC) provides strategic guidance and recommendations for the successful project implementation. The NSC is the highest level of decision making for any matters related to the outcomes, outputs and activities of the project. The NSC is responsible for ensuring the alignment of the project strategy to the national strategies and priorities. The NSC will be responsible for the quality assurance and control, reviewing the project plans and reports (annual results reports, mid-term and final evaluation reports), managing the strategic changes, intermediate results changes and potential changes in the implementation modalities whenever necessary, to allow agile adaptation of the project for a greater impact.

Both COMBIO and TREPA will have parallel complementary NSC, which will be meeting at least twice a year. The composition of the NSC already set in TREPA project, for COMBIO, in addition to Ministry of Environment (Chair), the donor (SIDA, which will become automatically the Co-Chair) and the three executing entities (RFA, Enabel and IUCN), it also will comprise the following institutions:

- Ministry of Finance
- Ministry of Local Governance (MINALOC)
- Eastern Province
- Ministry of Agriculture (MINAGRI)
- Ministry of Infrastructure – Energy Division (for the Biomass aspects of TREPA)
- Rwanda Environmental Management Authority (REMA)
- National Fund for Environment (FONERWA)
- Rwanda Agriculture Board (RAB)
- National Agricultural Export Board (NAEB)

- Rwanda Development Board (RDB)
- Rwanda Cooperative Agency (RCA)

Other representatives of CSOs and relevant Private Sector Organisations, as well as individual experts may be invited in the National Steering Committee when deemed necessary.

The Project Management Unit (PMU): To ensure the quality and timely delivery of COMBIO Project, it is proposed to have a separate PMU for the project, to be established under the SPIU of RFA. The PMU will be headed by the Project Manager to be hired on a competitive basis. The PMU may include local and international experts hired by the executing agencies based on project needs with the concurrence of the NSC to provide adaptive programme management support. In this regard, the modalities of recruitment for the Project manager, ITA and NTAs will depend on the leading implementing partner in charge of the given output or activity.

For practical reasons, both TREPA and COMBIO PMUs will be established in MoE or RFA premises, while reporting to RFA/SPIU. For ground level delivery, under the PMU, the executing entities together with support from their service providers will establish dedicated field staff in specific districts of intervention in the Eastern Province, coordinating activities delivery in one or more districts depending on the needs, and these teams will work closely with the Joint Action Development Forums (DJAF) based in each district.

A more detailed project implementation and procedure manual will be developed in the start-up of the project and validated by the Steering Committee to provide guidance on implementation modalities through the multi-stakeholder approach.

4.3. The roles and task of implementing partners

For the outputs and activities implementation on field, the table below shows the leading Partner and foreseen potential service provider based on the specific expertise and /or the role that the partner is already having in TREPA project.

Output	Activity	Lead Executing Entity	Implementing partner	Collaborating institutions
Outcome1: Restored, enhanced, and protected biodiversity for increased climate resilience in productive and protective landscape				
1.1. Increased biodiversity in protected natural reserves and community natural sancta.	1.1.1 Design participatory restoration and management action plan for the 8 natural forests protected by 2014 ministerial decree	RFA	IUCN	RDB, REMA,
	1.1.2 For each of the protected natural forest, establish, organise and train local communities groups to participate in the restoration and protection actions			RFA
	1.1.3 Support the natural regeneration and enrichment (planting) of biodiversity supportive native tree and shrubs in the 8 protected natural forests			
	1.1.4 Undertake control measures to fight against invasive exotic species (such as Lantana) and establish where required firebreaks and border natural green fences and signs			
	1.1.6 Select areas suitable for biodiversity sancta (35 of 20 ha each in average), establish, organise and train related local communities groups, and design community based management plan		Enabel	RFA
	1.1.7 In each of natural sanctum, support local communities in establishment and sustainable management of pharmacopeia/botanical gardens, orchards for indigenous fruits, medicinal and essential oil plants, etc. with diversified biodiversity supportive and multipurpose tree/shrubs/herbs species			RFA
	1.1.8 Develop nature discovery and observatory circuit in sancta, train local guide and set-up vulgarization supports (illustrated explanatory board, etc.)			Enabel

1.2. Enhanced biodiversity in productive forests and agro-ecological landscapes	1.2.1 Introduce diversified adapted multipurpose native species and varieties important for biodiversity in 8000 ha of agroforestry and silvopastral lands restored by TREPA	RFA	RFA	RAB, ICRAF, ENABEL
	1.2.2 Disseminate green smart agricultural practices in the supported 8000 ha farm lands			
	1.2.3 Introduce diversified adapted multipurpose native species important for biodiversity in 5% of productive forest plantation restored by TREPA			ENABEL
	1.2.4.Plant native tree species for increased biodiversity in 500 km road side and establish community vigilance committee in charge of their protection			IUCN, ENABEL
	1.2.5. Through the newly established incentive mechanisms, secure the rewards to farmer's groups for bio diversification as a result of planting 1,080, 000 tree/shrubs on 8,000 Ha of agroforestry and 5% of tree plantation in the project areas			
1.3. Restored and protected marshlands and aquatic ecosystems	1.3.1 Identify priority rivers banks, lakes shore and wetlands where biodiversity has to be restored and identify native species to be promoted.	RFA	RFA	REMA, IUCN
	1.3.2 Support the natural regeneration and enrichment (planting) of native symbiotic species (trees, shrubs, and herbs) in identified 400 km of river/lake/wetlands banks			
1.4. Reproductive material developed	1.4.1 Establish and operationalize gene bank	RFA	RFA	UR/CoEB

for biodiversity supportive species	system for endangered and threatened species			
	1.4.2 Enhance/develop protocols for the seed treatment, propagation and seedling production of biodiversity supportive species			
	1.4.3 In collaboration with biodiversity sancta, establish seed stands and botanical garden for genetic improvement of multipurpose, biodiversity supportive and climate adapted tree/shrub/herb species	RFA	RFA	Enabel, ICRAF, WV
Outcome2: Improved livelihood of community through biodiversity-based enterprises and developed value chains				
2.1. Community preferred /acceptable and profitable Biodiversity based enterprises developed	2.1.1 Conduct participatory identification and feasibility analysis (market study, sustainable supply capacity from existing resources, profitability potential and conditions, etc.) of appropriate biodiversity based enterprises, and select for each sancta the biodiversity based value chain(s) and businesses to be developed	RFA	ENABEL	RFA, RDB, RCA, NAEB
	2.1.2 For each sancta, engage community (including women, youth, historically marginalized, etc.) through agreement, organize community champion groups and build their organizational capacity, establishing cooperatives where relevant.			RFA, RCA
	2.1.3 Support sancta community groups in mapping appropriate sites for the development of selected biodiversity based enterprises, build their business management capacity, link them to the			RCA, NAEB, RDB

	potential markets and support the development and monitoring of their business plans			
	2.1.4 Train selected field operators of each community groups in the mastering of sustainable technics for the processing of biodiversity based products, and for the maintenance of dedicated infrastructures and equipment			RFA, RCA, NAEB, RDB
	2.1.5 Based on a results based financing approach, support sancta champion community groups in acquiring biodiversity based product processing equipment and storage facilities			RFA, NAEB, RCA,
2.2. Sustainable community based Biodiversity financing mechanism established and operationalized	2.2.1 Establish a Community based Biodiversity Revolving Fund (CBRF) in partnership with FONERWA as an incentive for community to maintain biodiversity in natural sancta and productive crop/forest lands	RFA	IUCN	FONERWA, RFA
	2.2.2 Develop and pilot in the intervention area PES mechanisms as one of resource potential for the CBRF, including mobilisation of contribution from supported nature based enterprises			
	2.2.3 Establish mechanisms and train/organize dedicated local institutions for the registration and selling of carbon credits generated from community biodiversity and forest landscape restoration actions, as a second resource potential for the CBRF.			
	2.2.4 Develop and implement a biodiversity monitoring system on private productive crop and forest lands, as the basis for the CBRF easements			

	of biodiversity protection and restoration efforts			
Outcome3: Strengthened and coordinated community based knowledge and National monitoring systems for biodiversity conservation				
3.1. Developed community-based management and monitoring mechanisms to support enhancement of biodiversity for Climate Change Adaptation and mitigation	3.1.1 Engage districts stakeholders (JAF) to mainstream biodiversity within district development strategy and action plan (DDS, DDP) (biodiversity indicators in action plan and reporting)	RFA	MoE	RFA, REMA
	3.1.2. Develop guidelines and partnership framework with local community for monitoring and participatory management of biodiversity in public resources like buffer zones remnant forests, wetlands, protected forests, community sancta, etc			RFA, REMA
	3.1.3Support national biodiversity monitoring system for regular reporting on key indicators of eastern province (including updating FLR barometer for Rwanda and Rwanda biodiversity catalogue)			RFA, REMA
	3.1.4. Conduct assessment of local institutional and technical capacities to carry out biodiversity conservation management			
	3.1.5. Update and improve country's biodiversity database (reporting tools and indicators) while enriching the country's GBIF biodiversity data			RFA
3.2: Enhanced awareness and knowledge in biodiversity conservation and sustainable use	3.2.1 In collaboration with UR, conduct Baseline assessment of biodiversity status opportunities and threats in eastern province to inform conservation measures; Conduct research to assess		IUCN	RAF, UR/CoEB

	impact of biodiversity on ecological functions			
	3.2.2 Based on established biodiversity sancta, develop education programs to increase awareness of biodiversity and alternative indigenous plant species to communities, schools			RFA, Enabel, REMA
	3.2.3 Develop, and disseminate generated knowledge various communication channels (Radio and Television shows, newspapers , Policy briefs, (for policy makers, and community awareness) Scientific journals		RFA	RFA, REMA

ANNEX 1: Logical framework

Draft LOGICAL FRAMEWORK COMBIO					
	Logical of intervention	**Indicators**	**Baseline Value**	**Target value**	**Source of verification**
Outc 1	**Restored, enhanced, and protected biodiversity for increased climate resilience in productive and protective landscapes**	Ha of landscapes restored with the integration of diversified species supporting biodiversity enhancement	Akagera area: 112,200 ha	124,902 ha =baseline + 12702 ha (3102 protected forest + 700 sancta + 8000 crop lands + 500 ha road side + 400 ha river/lake shore = 124,902	Maps of Management Plan
		Number of biodiversity supportive tree/shrubs species integrated	0	20	Field assessment reports
Outc 2	**Improved livelihood of community through biodiversity-based enterprises and developed value chains**	Aggregate total incomes generated from biodiversity based enterprises	0	To be define through foreseen feasibility studies	M&E reports
		Result based financing mechanisms for biodiversity species integration in place	0	1	
Outc 3	**Strengthened and coordinated community based knowledge and National monitoring systems for biodiversity conservation**	Number of community groups engaged in biodiversity enhancement and conservation	0	178 = 35 sancta groups + 8 protected forest groups + 80 farmer groups + 10 PFMU cooperatives + 45 vigilance comittee	Communities agreements signed with local authorities
		% of random sample of local communities of the intervention area, are aware about the impact of biodiversity on nature and livelihoods	To be set by baseline survey	>50%	Baseline and endline surveys
	Logical of intervention	**Indicators**	**Baseline Value**	**Target value**	**Source of verification**

Output 1.1	**Increased biodiversity in protected natural forests and community natural sancta.**	1 Biodiversity restoration and protection management plan designed and implemented in collaboration with local communities for each of the 8 protected natural forest (totalizing 3102 ha)	0	8	Management plans
		Number of ha of biodiversity sanctum established under participatory management plans	0	700 ha	Maps of management plans
		Number of species regenerated/restored in the 8 protected natural forests and sancta	0	20	Field assessment reports
Key Activities	1.1.1 Design participatory management plans and action plans for the 8 protected forests and certification under IUCN protected area categories				
	1.1.2 For each of the protected natural forest, establish, organise and train local communities groups to participate in the restoration and protection actions				
	1.1.3 Support the natural regeneration and enrichment (planting) of biodiversity supportive native tree and shrubs in the 8 protected natural forests				
	1.1.4 Undertake control measures to fight against invasive exotic species (such as Lantana) and establish where required firebreaks and border natural protective fences and signs				
	1.1.5				
	1.1.6 Select areas suitable for biodiversity sancta (35 of 20 ha each in average), establish, organise and train related local communities groups, and design community based management plan				
	1.1.7 In each of natural sanctum, support local communities in establishment and sustainable management of pharmacopeia/botanical gardens, orchards for indigenous fruits, medicinal and essential oil plants, etc. with diversified biodiversity supportive and multipurpose tree/shrubs/herbs species				
	1.1.8 Develop nature discovery and observatory circuit in sancta, train local guide and set-up vulgarization supports (illustrated explanatory board, etc.)				
	Logical of intervention	**Indicators**	**Baseline Value**	**Target value**	**Source of verification**
Output 1.2	**Enhanced biodiversity in productive forests and agro-ecological landscapes**	Number of ha of agroforestry and sylvopastoral lands enriched with biodiversity natives species (20 species on the overall area)	0	8000	Field assessment reports
		Number of biodiversity trees/shrubs planted per ha in agroforestry lands	0	60	Field assessment reports

		Number of ha of forest plantation in which diversified tree species (at least 10 species) enhancing biodiversity are planted	0	400 ha (5% of plantation restored by TREPA)	Field assessment reports
		Number of km of road side enriched (200 tree/km) with biodiversity supportive species (10 species)	0	500	Field assessment reports
Key Activities	1.2.1 Introduce diversified adapted multipurpose native species and varieties important for biodiversity in 8000 ha of agroforestry and silvopastral lands restored by TREPA				
	1.2.2 Disseminate green smart agricultural practices in the supported 8000 ha farm lands				
	1.2.3 Introduce diversified adapted multipurpose native species important for biodiversity in 5% of productive forest plantation restored by TREPA				
	1.2.4 Plant native tree species for increased biodiversity in 500 km road side and establish community vigilance committee in charge of their protection				
	Logical of intervention	**Indicators**	**Baseline Value**	**Target value**	**Source of verification**
Output 1.3	**Restored and protected marshlands and aquatic ecosystems**	Km of buffer zones of rivers, lakes and wetlands enriched with symbiotic biodiversity tree/shrubs/herbs species (10 species)	0	400 km	Field assessment reports
		Action plan for the control of invasives species	0	1	Action plan report
		Report on tested control measure	0	1	Assessment report
Key Activities	1.3.1 Identify priority rivers banks, lakes shore and wetlands where biodiversity has to be restored and identify native species to be promoted.				
	1.3.2 Support the natural regeneration and enrichment (planting) of native symbiotic species (trees, shrubs, and herbs) in identified 400 km of river/lake/wetlands banks				
	1.3.3 Assess current status and treat of invasive species (such as Jacintha) and design adapted control measures and action plan				
	1.3.4 Pilot and assess results of new method for invasive species control.				
	Logical of intervention	**Indicators**	**Baseline Value**	**Target value**	**Source of verification**
Output 1.4	**Reproductive material developed for biodiversity supportive species**	Number of endangered natives species conserved ex-situ in gene bank.	0	20	Activity report
		Number of ha of tree seed stand dedicated to biodiversity supportive species (30 species)	0	100 ha	Field assessment reports

		Number of biodiversity supportive species for which protocols for seed treatment and seedling production are enhanced/developed.	TBC	TBC + 20	Activity report
Key Activities	1.4.1 Establish and operationalize gene bank system for endangered and threatened species				
	1.4.2 Enhance/develop protocols for the seed treatment, propagation and seedling production of biodiversity supportive species				
	1.4.3 In collaboration with biodiversity sancta, establish seed stands and botanical garden for genetic improvement of multipurpose, biodiversity supportive and climate adapted tree/shrub/herb species				
	Logical of intervention	**Indicators**	**Baseline Value**	**Target value**	**Source of verification**
Output 2.1	**Community preferred /acceptable and profitable Biodiversity based enterprises developed**	Number of biodiversity value chain assessed, selected	0	>5	Assessment report
		Number of biodiversity based enterprises developed	0	>35	Field assessment reports, enterprises reports
Key Activities	2.1.1 Conduct participatory identification and feasibility analysis (market study, sustainable supply capacity from existing resources, profitability potential and conditions, etc.) of appropriate biodiversity based enterprises, and select for each sancta the biodiversity based value chain(s) and businesses to be developed				
	2.1.2 For each sancta, engage community (including women, youth, historically marginalized, etc.) through agreement, organize community champion groups and build thier organizational capacity, establishing cooperatives where relevant.				
	2.1.3 Support sancta community groups in mapping appropriate sites for the development of selected biodiversity based enterprises, build their business management capacity, link them to the potential markets and support the development and monitoring of their business plans				
	2.1.4 Train selected field operators of each community groups in the mastering of sustainable technics for the processing of biodiversity based products, and for the maintenance of dedicated infrastructures and equipment				
	2.1.5 Based on a results based financing approach, support sancta champion community groups in acquiring biodiversity based product processing equipment and storage facilities				
	Logical of intervention	**Indicators**	**Baseline Value**	**Target value**	**Source of verification**
Output 2.2	**Sustainable community based Biodiversity financing mechanism**	Community biodiversity PES fund and in place	0	1	PES report, carbon registration report

	established and operationalized	Number of planted biodiversity supportive tree/shrub incentivised	0	1080000	Incentive rewarding report and accounting
		Aggregate amount of contribution collected from biodiversity enterprises	0	TBD based on financial analysis	Revolving fund report
Key Activities	2.2.1 Establish a Community based Biodiversity PES Fund in partnership with FONERWA as an incentive for community to maintain biodiversity in natural sancta and productive crop/forest lands				
	2.2.2 Develop and pilot in the intervention area PES mechanisms as one of resource potential for the CBRF, including mobilisation of contribution from supported nature based enterprises				
	2.2.3 Establish mechanisms and train/organize dedicated local institution for the registration and selling of carbon credits generated from community biodiversity and forest landscape restoration actions, as a second resource potential for the PES .				
	2.2.4 Develop and implement a biodiversity monitoring system on private productive crop and forest lands, as the basis for the CBRF easements of biodiversity protection and restoration efforts				
	2.2.5. Through the newly established PES incentive mechanisms, secure the rewards to farmer's groups for bio diversification as a result of planting 1,080, 000 tree/shrubs on 8,000 Ha of agroforestry and 5% of tree plantation in the project areas				
	Logical of intervention	**Indicators**	**Baseline Value**	**Target value**	**Source of verification**
Output 3.1	**Developed community-based management and monitoring mechanisms to support enhancement of biodiversity for Climate Change Adaptation and mitigation**	biodiversity indicators in district's action plan and reporting	0	TBD	District action plans
		Guidelines and partnership framework with local community	0	1	Activity report
		Local institutional and technical capacity assessment for sustainable biodiversity management and conservation	0	1	Report
		Biodiversity key indicator reported at least every 2-3 years	0	TBD	Indicator reports
Key Activities	3.1.1: Conduct workshops to engage district and relevant community stakeholders for mainstreaming of biodiversity conservation in their strategies and plans				
	3.1.2: Establishing partnership frameworks and mechanisms for participatory biodiversity monitoring by local agencies and institutions				
	3.1.3: Design and develop guiding information tools for sustainable management of both productive biodiversity and protected biodiversity (Community sancta, buffer zones and wetlands) conservation				
	3.1.4: Conduct assessment of local institutional and technical capacities to carry out biodiversity and biodiversity conservation management				

	3.1.5: Update and improve country's biodiversity database (reporting tools and indicators) while enriching the country's GBIF biodiversity data				
	Logical of intervention	**Indicators**	**Baseline Value**	**Target value**	**Source of verification**
Output 3.2	**Enhanced awareness and knowledge in biodiversity conservation and sustainable use**	Baseline assessment of biodiversity status opportunities and threats	2	1	Baseline report
		Research report on impact of biodiversity on ecological functions, and biodiversity socioeconomic impact	3	1	Research report
		Number of educational tours organised in sancta for local communities	0	70	Activity reports
		Updating biodiversity database and reporting systems	0		Activity report
		Number of school involved in biodiversity education program	0	70	Activity reports
Key Activities	3.2.1: Conducting biodiversity status assessment (baseline) to explore opportunities and threats that facilitate designing and implementation of policies, programmes and activities that can ensure their sustainable conservation and management.				
	3.2.2: Conduct research on impact of biodiversity on ecological function and on climate change adaptation/mitigation.				
	3.2.3: Develop biodiversity conservation school program to operate in 35 schools linked to community sancta				
	3.2.4: Conduct biodiversity awareness campaign in local communities targeted by the intervention				
	3.2.5: Develop, and disseminate generated knowledge through various communication channels				

ANNEX 2: Detail Budget

Detailed budget, annual flow and procurement plan are attached is the Excel file.