Darwin Initiative Main: Annual Report

To be completed with reference to the "Project Reporting Information Note": (https://www.darwininitiative.org.uk/resources/information-notes/)

It is expected that this report will be a **maximum of 20 pages** in length, excluding annexes)

Submission Deadline: 30th April 2024

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Darwin Initiative Project Information

Project reference	DIR27S2\1001 – 28-007
Project title	**Building smart seed systems for biodiversity, livelihoods and resilient restoration**
Country/ies	Cameroon
Lead Partner	Bioversity International as part of the Alliance of Bioversity-CIAT
Project partner(s)	Ministry of Forest and Wildlife (MINFOF); Actions pour la Biodiversité et Gestion des Terroirs) (ABIOGeT); Promotion de l'Ecotourisme, Encadrement des Couches Vulnérables et autres Minorités (PEM); Asaah Fonyam and Angwi Foundation (AFAF); University of Yaounde 1 (Yaounde 1); University of Aberdeen (UoA)
Darwin Initiative grant value	GBP 375,000
Start/end dates of project	1/7/2021- 30/06/2024
Reporting period (e.g. Apr 2023 – Mar 2024) and number (e.g. Annual Report 1, 2, 3)	April 2023 to March 2024 Annual Report FY2 (July, 2021- March, 31 2022) and half Year report FY2 (April 1, 2022 to October 31, 2022)
Project Leader name	EKUE Marius Rodrigue [redacted]
Project website/blog/social media	-
Report author(s) and date	Marius [redacted], Junior [redacted], Stephanie [redacted], Moselyne [redacted], Laure [redacted], Carine [redacted], Jean Paul [redacted], Clément [redacted], David [redacted], Ebenezer [redacted], Hubert [redacted], Christopher [redacted] 4th Sept 2024

1. Project summary

Tree-based restoration, is widely recognised as one of the most powerful tools to simultaneously sequester atmospheric carbon, tackle climate change, and yield benefits for biodiversity, rural livelihoods, nutrition, contributing to multiple SDGs.

Restoration targets are ambitious: 113 million hectares pledged under the African Forest Landscape Restoration Initiative (AFR100), 12 million hectares in Cameroon alone. These are mostly government-led, requiring significant investment. Assuming that 50% of restoration is tree planting, this will require 6 million ha to be planted with approximately one thousand (1,000) trees

per ha. A conservative estimate is that demand exists for 10's of billions of seeds and seedlings. The limited capacity of most community nursery (max 500,000 seedings per year) necessitates thousands of community nurseries will need to start producing seedlings of high quality, biodiverse, native tree species. *This initiative is aimed at kickstarting this process for Cameroon, to accelerate the country's progress towards these ambitious (and fast-approaching) targets*.
However, critical gaps in the capacity and tools to conserve and use native FGR - Forest Genetic Resources – has resulted in a dearth of quality, locally-adapted material available for restoration. The failure to consider the genetic and species diversity of seed sources undermines restored forest landscapes ability to adapt to environmental change and deliver ecosystem benefits to local people. In Cameroon, desertification, and population displacement due to conflict sees increased degradation as trees are cut to satisfy short-term needs. The pressure on Cameroon to meet its AFR100 target, coupled with lack of access to information about local tree diversity, has translated to reforestation that favours easily-available but poorly-suited exotic species (eucalyptus, pines) over native biodiversity. Native species, if carefully selected and managed, could provide greater benefits for livelihoods, long-term conservation, and climate change adaptation.
Poor consideration of diversity is a major constraint to successful and efficient restoration.[1],[2] In Cameroon lack of attention to species selection and origin and quality of seeds is recognised as a major contributor to failure of restoration[3]. Current nursery production and seed systems are often ad-hoc, artisanal and unregulated. National restoration commitments indicate the demand for native tree seedlings in Cameroon is likely in the order of billions of seedlings. This will require a substantial shift in production, with tens of thousands of farmers and communities engaged in tree seedling production through entrepreneurial small holder nurseries .
This project will help Cameroon shift from the status quo of using exotic, maladapted, or unfit for purpose planting material towards restoration that harnesses the multiple benefits of native FGR. The project is fully aligned with Cameroon's most recent national restoration strategic framework (October 2020)[4], which highlighted the need for an integrated and multisectoral approach to forest landscape restoration (FLR) with effective monitoring, reporting and communication systems at scale, for strengthening the role of research to support upscaling of FLR, and for building capacities of local communities to use the full range of native tree species.
This project will empower and incentivise community-based nurseries to collect seeds, propagate seedlings and market these products to meet growing national-level demand for billions of seedlings. At the same time documenting, and verifying activities from seed collection to planting.

The project is being implemented in the North, West and Southern parts of Cameroon. (Figure 1).

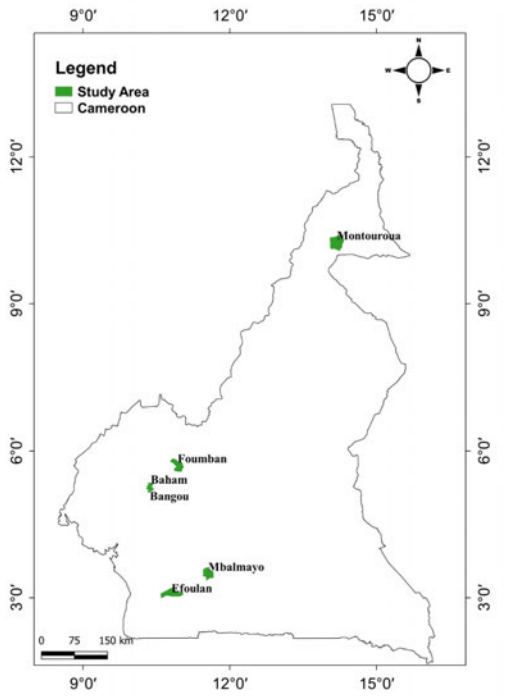

Figure 1: Project sites in Cameroon

[1] Jalonen, R., Valette, M., Boshier, D., Duminil, J., Thomas, E., 2018. Forest and landscape restoration severely constrained by a lack of attention to the quantity and quality of tree seed: Insights from a global survey. Conserv. Lett. 11, e12424. https://doi.org/10.1111/conl.12424

[2] Nef, D.P.; Gotor, E.; Wiederkehr Guerra, G.; Zumwald, M.; Kettle, C.J. (2021) Initial investment in diversity is the efficient thing to do for resilient forest landscape restoration. Frontiers in Forests and Global Change 3:615682 ISSN: 2624-893X. https://dx.doi.org/10.3389/ffgc.2020.615682

[3] Taedoumg E. Hermann, Manga Essouma François, Ekué Marius R.M. 2019. Evaluation des moyens de subsistance et des avantages écologiques des initiatives de restauration au Cameroun. Bioversity Report. 72 p

[4] Restoration of degraded Forests and Landscapes in Cameroon. National strategic framework. MINFOF – MINEPDED – GIZ - WRI, 2020. 88 p

2. Project stakeholders/ partners

The implementation of the project has continued normally with the same member of the consortium.

In Cameroon the project coordination unit had in-person physical meetings and engagements with the key Ministries (the Ministry of Forest and Wildlife -MINFOF; and the Ministry of Environment, Protection of Nature and Sustainable Development -MINEPDED) implementing government policies related to sustainable forest managements and forest landscape restoration in Cameroon. We've also engaged other key stakeholders such as the National Agency for the Development of Forest (ANAFOR) as well as the Universities of Yaounde 1, Dschang and the National Forestry Schools in ENEF) in Mbalmayo.

In each project sites, we held regular exchanges with the local authorities, the City Councils, the local delegates of MINFOF and MINEPDED. Joint field visits were organised with national projects partners (ABIOGET, PEM and AFAF) to introduce the project and work with the communities. The partners ABIOGeT, AFAF and PEM were responsible for sub activities described in their terms of references.

Sub-agreements were also signed with key Partners such as ABIOGET, PEM, University of Yaounde 1 in Cameroon and with the University of Aberdeen in UK to enable transfer of funds and collection of reports.

ABIOGeT and PEM were very active in training seeds collectors and distributing seeds collection bags, while PEM has designed and trained nurseries managers on best practices to vegetatively produce seedlings of native trees species. The University of Aberdeen and the University of Yaounde have contributed in designing surveys, field data collection and the supervision of the PhD student registered at the University of Yaounde 1.

3. Project progress

3.1 Progress in carrying out project Activities

The project has in total 18 activities planned under 4 outputs. As reported in the last year annual reports, activities 1.1, 1.2., 1.3, 1.4, 1.5, 1.6, 1.7, 2.1, 4.4 were fully implemented.

Progress in implementing remaining project's activities is reported here in accordance with the revised logframe (Annex 2), as approved in our change request sent to Darwin Initiative on 15th March 2022.

Activity 2.2. Elaboration of training manuals adapted to local contexts

A study titled determination of perceived traits of superior native species trees fit for germplasm, collection, and production for landscape restoration in West, South Sahelian regions of Cameroon was conducted in Q1 & Q2. A total of 602 persons were interviewed in Sahelian region (351), South region (127), and West region (124). The results revealed that nursery managers have limited knowledge in seed collection, propagation methods, nursery management, landscape restorations options including marketing strategies to sell both seeds and plants to clients.

In response, training modules were developed together with project partners to organise two days trainings for a total of 140 nursery mangers in each of the target regions of West, South and Sahelian regions of Cameroon. The objectives of the training were to:

- Reinforce nursery managers' knowledge of nursery development and management.
- Enhance nursery managers' understanding of germplasm collection (seed and vegetative).
- Reinforce nursery managers' knowledge of tree propagation technologies.
- Reinforce nursery managers' knowledge on ecosystem restoration.

- Introduce nursery managers' to record keeping and marketing strategies of seed and seedling.

The training modules elaborated (Annex 4) have three main modules and integrate the use of MyGeoTree Collector app and MyGeoTree Nursery apps.

Module I: Nursery Establishment and Management

1. **Introduction to Small-Scale Nurseries**:
    - Explain the importance of small-scale nurseries in biodiversity conservation, ecosystem restoration, and local livelihood improvement.
    - Discuss the ecological, nutritional, socio-cultural and economic benefits of native plants, and the role of nurseries in supporting these efforts.
2. **Site Selection and Infrastructure Development**:
    - Identify suitable locations for the nursery based on factors such as climate, soil type, water availability, and proximity to markets.
    - Assess the need for shade structures, irrigation systems, potting areas, storage facilities and security of seedlings and nursery plants and equipment.
    - Consider accessibility for transportation of materials and products to and from the nursery.
3. **Species Selection and Propagation Methods**:
    - Conduct a biodiversity assessment to determine the most appropriate plant species for propagation.
    - Prioritize native or locally adapted species with ecological, nutritional, socio-cultural value and market demand.
    - Explore various propagation methods including seed propagation, marcotting, and grafting techniques.
    - Provide training (theory and hands on exercises) on the specific requirements and techniques for propagating different plant species.
4. **Nursery Management Practices**:
    - Establish protocols for watering, fertilization, pest and disease control, and weed management.
    - Train staff on nursery maintenance tasks and monitor plant health regularly.
    - Emphasize the importance of hygiene and sanitation to prevent the spread of pests and diseases.
    - Implement record-keeping systems to track plant inventory, inputs, and production activities.
5. **Market Linkages and Networking**:
    - Develop partnerships with local communities, NGOs, government agencies, and potential buyers.
    - Attend relevant agric shows, village markets, and community events and other cultural festivals to showcase products and network with customers.
    - Explore collaborative opportunities with landscaping companies, restoration projects, and other potential clients.

- Provide information and resources on marketing strategies, including branding, packaging, and pricing.

6. **Capacity Building and Training**:
    - Emphasis on the need to often attend training programs and workshops on nursery establishment, management, and marketing.
    - Provide hands-on experience and practical demonstrations of nursery operations.
    - Encourage continuous learning and skill development among nursery staff and stakeholders.
    - Create a supportive learning environment where nursery managers can exchange ideas, share experiences, and troubleshoot challenges together.
7. **Environmental Considerations and Sustainability**:
    - Incorporate principles of sustainable nursery management, such as water conservation, waste reduction, and use of renewable resources.
    - Promote the use of organic fertilizers and pest control methods to minimize environmental impact.
    - Educate nursery managers about the importance of biodiversity conservation and ecosystem restoration and the role of native plant nurseries in supporting local ecosystems.

Module II: Germplasm Collection and Propagation Techniques in Small Scale Nurseries

1. **Introduction to Germplasm Collection and Its Importance**: **MyGeoTree Collector**
    - Provide an overview of germplasm collection as the process of gathering and preserving genetic resources of plant species.
    - Explain the significance of germplasm conservation for maintaining genetic diversity, adapting to changing environmental conditions, and supporting natural breeding of plants or to support plant breeding programs.
2. **Planning and Legal Considerations for Germplasm Collection**:
    - Identify target plant species based on conservation priorities, ecological significance, nutritional, socio-cultural and potential economic values.
    - Obtain necessary permits and comply with regulations related to access and benefit-sharing, especially for collecting materials from protected areas or indigenous territories (like secret forest) and private territory.
    - Collaborate with local communities, landowners, and relevant authorities to ensure transparent and ethical collection practices.
3. **Field Collection Techniques for Seeds and Vegetative Materials**:
    - Emphasis to collectors on the need for proper field identification of target species, including distinguishing features, habitats, and seasonal characteristics.
    - Demonstrate techniques for collecting seeds, such as hand-picking ripe fruits, or using traps or nets for small seeds.
    - Provide guidance on collecting vegetative materials, specifically scions and marcots while ensuring minimal damage to mother (donor) plants.
4. **Documentation and Metadata Recording**:

- Establish protocols for documenting collection sites, including GPS coordinates, habitat descriptions, and associated species.
- Record relevant metadata such as elevation, soil type, and climatic conditions to facilitate future use and management of collected germplasm.
- Encourage thorough documentation of collection methods, dates, and collectors' observations to ensure data integrity and traceability.

5. **Germplasm Storage and Handling**:
    - Emphasis on the need to implement appropriate storage methods to maintain the viability and genetic integrity of collected materials.
    - Store seeds in cool, dry conditions to minimize moisture content and prevent fungal growth or seed deterioration.
    - Use specialized containers or packaging materials to protect seeds and vegetative materials from physical damage during transport and storage.
6. **Propagation Techniques**:
    - Provide training on seed propagation methods, including seed treatment (scarification, stratification), germination requirements, and nursery sowing techniques.
    - Demonstrate vegetative propagation techniques such as grafting and marcotting, tailored to the specific needs of target species.
    - Emphasize the importance of hygiene, sanitation, and environmental conditions (temperature, humidity, light) for successful propagation and establishment of plant material.
7. **Monitoring and Evaluation**: **MyGeoTree Nursery**
    - Establish monitoring protocols to track the success of germplasm collection and propagation efforts over time.
    - Monitor germination rates, seedling growth, and survival rates to assess the quality and performance of propagated materials.
    - Evaluate the genetic diversity and representativeness of collected germplasm to inform future collection strategies and conservation priorities.

Module III: Ecosystem Restoration, Record Keeping and Marketing Strategies

Ecosystem Restoration:

1. **Assessment and Planning**:
    - Conduct a thorough assessment of the target ecosystem, including its ecological status, degradation factors, and restoration potential.
    - Identify restoration objectives, such as enhancing biodiversity, improving ecosystem services, or mitigating environmental threats.
    - Engage stakeholders, including local communities, government agencies, and conservation organizations, in the planning process to ensure collaborative decision-making and consensus building.

2. **Site Preparation and Rehabilitation**:

- Prepare the restoration site by removing invasive species, controlling erosion, and introduce species that would restore soil fertility.
- Implement soil conservation measures, such as terracing, mulching, to prevent erosion and promote vegetation establishment.
- Introduce native plant species adapted to local environmental conditions, considering factors such as soil type, moisture levels, and microclimate variability.

3. **Planting and Establishment**:
    - Select appropriate planting methods, including direct seeding, container planting, or vegetative propagation, depending on site characteristics and restoration objectives.
    - Stress on the need for proper spacing and arrangement of planted species to maximize biodiversity and ecosystem functionality.
    - Stress on the need for watering, mulching, and maintenance practices to support plant establishment and minimize stress during the critical early stages of growth.

4. **Monitoring and Adaptive Management**:
    - Establish monitoring protocols to assess restoration progress, including vegetation cover, species diversity, and ecosystem function indicators.
    - Regularly evaluate project outcomes and adjust management strategies as needed based on monitoring data and stakeholder feedback.
    - Incorporate adaptive management principles to learn from both successes and failures and improve restoration practices over time.

Record Keeping in small-scale nurseries.

1. **Inventory Records**:
    - Inventory records track the quantity, species, and condition of plants held in the nursery.
    - They include details such as plant names, sizes, ages, and location within the nursery.
    - Inventory records help nursery managers keep track of available stock, plan future production, and monitor plant health and growth.

2. **Propagation Records**:
    - Propagation records document the methods and results of plant propagation activities.
    - They include information on the source of propagules (e.g., seeds, grafts, marcots), propagation techniques used, dates of propagation, and success rates.
    - Propagation records help nursery staff assess the effectiveness of different propagation methods, identify successful techniques, and troubleshoot propagation failures.

3. **Cultural Practices Records**:
    - Cultural practices records document various nursery management activities, such as watering, fertilization, pest and disease control, and pruning.

- They include details such as dates of application, types and quantities of inputs used, and observations of plant response.
- Cultural practices records help ensure consistency in nursery management practices, track resource usage, and identify trends or patterns in plant health and performance.
- Sales and Distribution Records:
- Sales and distribution records track the sale and distribution of plants from the nursery to customers.
- They include information on customer orders, quantities sold, prices, payment details, and delivery or pickup arrangements.
- Sales and distribution records help nursery managers manage customer relationships, track revenue and expenses, and plan production to meet market demand.

4. **Quality Control Records**:
   - Quality control records document assessments of plant quality and health conducted by nursery staff.
   - They include criteria for evaluating plant quality (e.g., size, form, vigor, absence of pests and diseases) and results of inspections.
   - Quality control records help ensure that only high-quality plants are sold to customers, maintain the reputation of the nursery, and minimize the risk of introducing pests and diseases.
   - Regulatory Compliance Records:
   - Regulatory compliance records document compliance with relevant laws, regulations, and permits governing nursery operations.
   - They include permits for germplasm collection, import/export permits for plant materials, and records of inspections or audits by regulatory agencies.
   - Regulatory compliance records help demonstrate legal and ethical conduct, mitigate risks of non-compliance, and maintain the nursery's license to operate.

Maintaining accurate and up-to-date records is essential for effective nursery management, decision-making, and accountability. Records provide valuable information for evaluating performance, identifying areas for improvement, and demonstrating compliance with standards and regulations for example when using phytosanitary products or in the evident of application of fertilizers etc.

Marketing Strategies:

1. **Market Analysis and Research**:

   - Conduct market research to identify target customers of seeds and different species and type of plants in the nursery, market trends, and demand for ecosystem restoration services or species orientation.

   - Analyze what plants species other competitor offering, their pricing strategies, and distribution channels to understand the competitive landscape of seed and seedling sector and identify market niches.

2. **Product Development and Differentiation**:

   - Develop unique selling propositions (USPs) for seeds and plants produced in nurseries. They should provide, among others, ecosystem restoration services or products, as well as ecological and social benefits.

   - Innovate and diversify seed and plant species in nurseries to ensure they meet diverse customer needs and preferences, such as native plant species, habitat restoration services, or eco-friendly landscaping designs.

3. **Brand Building and Promotion**:

    - Build a strong native species seed and seedlings brand identity that reflects expertise in the production and distribution of diverse plants species fit for landscape restoration within your region.
    - Develop marketing materials and communication channels to raise awareness and promote the benefits of using native species in ecosystem restoration, including websites, social media, brochures, and presentations.
    - Engage in community outreach and educational initiatives to cultivate relationships with potential customers, stakeholders, and partners in private and government sectors.

4. **Sales and Distribution Channels**:

    - Establish sales channels and distribution networks to reach target markets effectively, including direct sales, partnerships with other nurseries or landscaping companies, projects, and/or online platforms.
    - Cultivate relationships with key buyers, such as government agencies and ministries, landowners, landscape developers, or environmental organizations, to secure contracts or collaborations for restoration projects.

5. **Customer Relationship Management (CRM)**:

    - Implement CRM systems and strategies to build long-term relationships with customers, manage inquiries and feedback, and track sales leads and opportunities.
    - Provide exceptional customer service and support throughout the restoration process, from initial consultations and project planning to implementation and follow-up monitoring.

Activity 2.3. Seed collectors, nursery workers, and forestry department managers have started using the SeedIT app to record data about tree seeds collected in project sites

Currently, we have a total of 1 950 seed collectors trained and registered on MyGeoTree Collector app (previously SeedIT). 210 nurseries were also registered on MyGeoTree Nursery (figure 2).

Seeds collected (figure 3) were used by the nurseries trained to produce nearly 20 000 seedlings that are currently being planted, labelled with tags containing the unique QR code generated by MyFarmTree app (Figure 4) allowing an easy monitoring of their performance over time beyond the end of the project.

In addition, we have set up two networks: 1) one for Seed Collector and 2) one for Nurseries Managers. Discussions are underway with the Ministry of Forest to formalise the creation of such networks.

In the network of seeds collectors, the availability of seeds will be advertised online by seeds collectors in their areas.

The nurseries managers will also advertise their demands for seeds of different tree species on their own network.

The supply (availability of seeds) and demands (request from nurseries and other seeds centers) will be shared among the two networks. Seeds providers and users (nurseries, seed centres) will then be able to contact each other and trade seeds. By doing so, we will make

sure that seeds are harvested and documented by MyFarmTrees Collector and the production of seedlings in nurseries will also be monitored to ensure the full traceability of the supply chain.

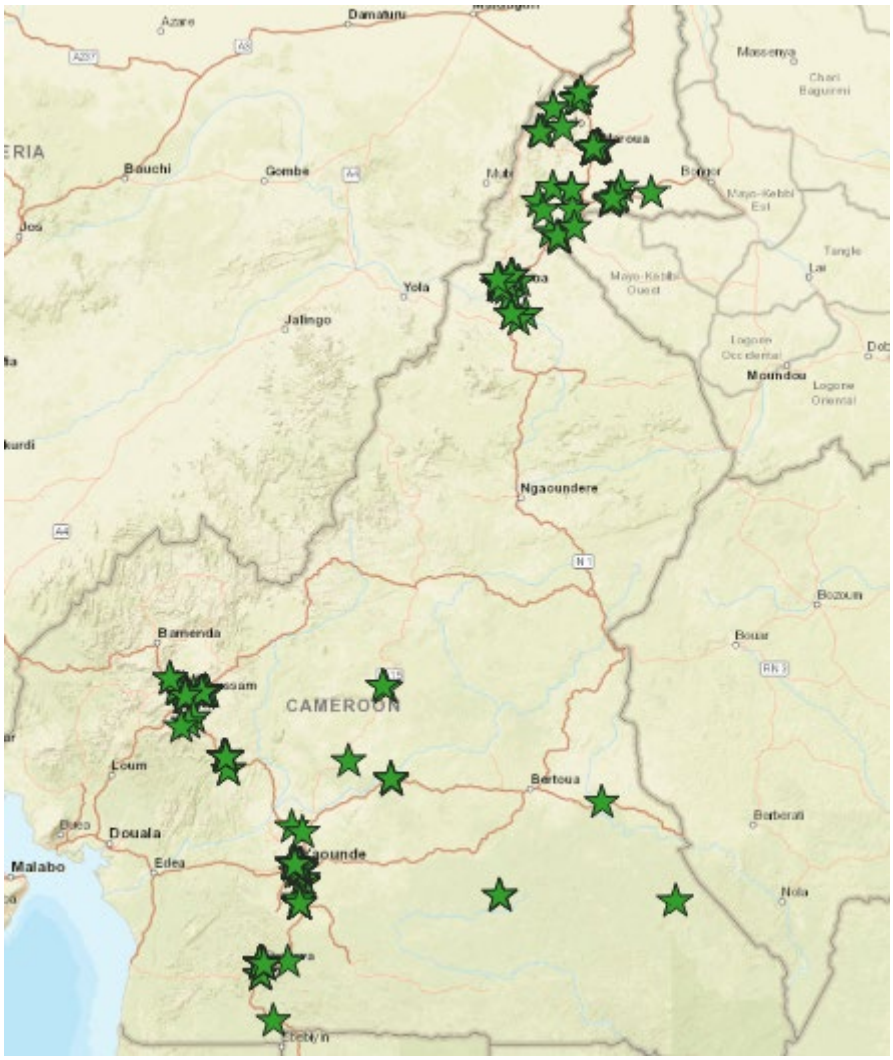

Figure 2. Geographic repartition of nurseries registered under MyGeoTree Nursery app in Cameroon

Figure 3: Delivery of seeds collected by collectors trained

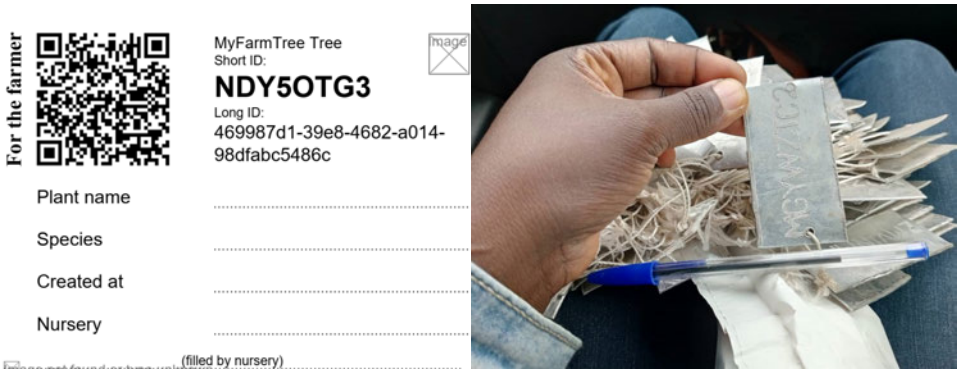

Figure 4: Illustration of the unique QR code generated per seedling (left). The short code (right) is printed on an aluminium tag and used to label each seedling during the plantation in the field

Activity 2.4. Build capacities of 1000 new stakeholders to use the SeedIT mobile app to record and track seed quality

Capacity building for seeds collectors

30 training sessions were organised with the involvement of local city councils and local government official involved in forest resources management in the project sites. 1 951 seeds collectors among which 40% of women were trained to the use of MyFarmTree Collector app. and on good practices to collect and document seeds of the priority tree species (Annexes 5 & 6).

A compilation of reports generated for each training session is available at Annexe 7.

After each training session (figure 5), seeds collector's groups are set up in each District. A typical seed collector group has between 2 and 4 members. The group must have one smartphone able to run the MyGeoTree Collector app. A list of priority tree species of interest for the project (Annexe 6) in the district is handled to each group, as well as seeds collection bags manufactured by the project (Figure 6).

Figure 5: Training sessions of seeds collectors in Cameroon

Figure 6: 16 000 seed collection bags from the Darwin Initiative project

Capacity building for nursery managers

Three separate training workshops were organized for the West, South, and Sahelian regions of Cameroon with a total of 140 participants. Participants were predominantly nursery managers and technicians from partner implementing organizations. The Sahelian region registered the highest number of participants and Centre/ South the least. Similarly, the Sahelian region registered the highest number of female participants (Figure 7).

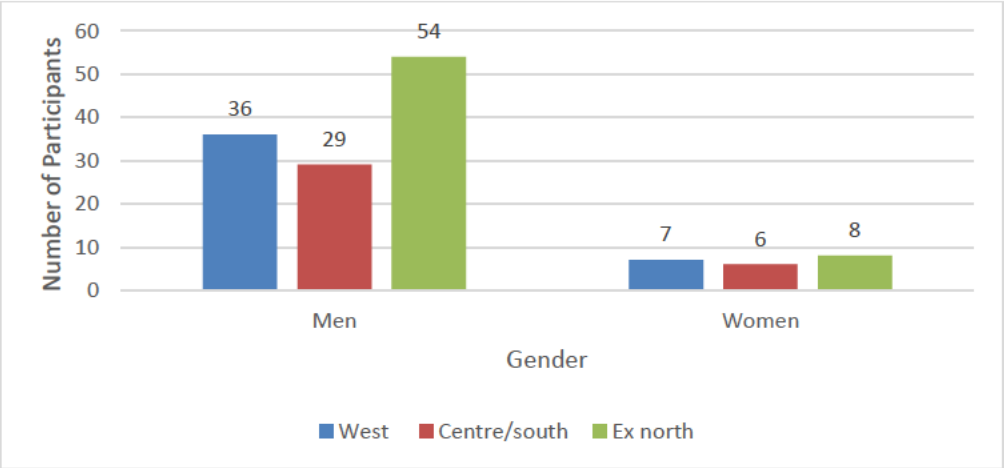

Figure 7: Characteristics of participants at training workshops in West, Centre/South and Extreme North Regions, Cameroon

Activity 2.5. Elaboration of guidelines for future scaling out

Scaling up of the project would involve expanding its reach, impact, and effectiveness to a larger population in the West, South and Sahelian regions within the current pilot sites. Here are some elaborated recommendations and guidelines for scaling:

1. **Clear Vision and Strategy**: During the training of 140 nursery managers together in each region the nursery manager agreed to develop nursery networks at regional, divisional and subdivisional levels. It could be associations or cooperatives etc. of

nursery managers. These networks will in turn develop a clear vision and strategy for scaling the knowledge and skills acquired within the framework of the project to reach other stakeholders and beneficiaries. While ensuring that the strategy adopted is flexible enough to adapt to different contexts and challenges. The new stakeholders and beneficiaries within their respective regions.

2. **Pilot and Learn**: Over the years the nursery managers have tested different approaches/methods to germinate, propagate and raise diverse seeds and seedlings on both native and adapted exotics species in their nurseries that now serve as pilot nurseries. They have been trained to keep records such that they can document their experiences and also gather feedback from their clients on species preferences, and seedling types. So, in essence over the years that have learnt what works best. This experience is what the trained nursery managers would use in scaling up to new stakeholders and beneficiaries within their respective regions.
3. **Partnerships and Collaborations**: The forming of Nursery Managers networks in the target project regions and give visibility to the nursery networks, this in turn would facilitate collaboration with other development-oriented projects, government ministries in charge of agriculture, forestry and environment and other stakeholders to leverage resources, expertise etc. that would be beneficial for scaling up. Nursery managers were cautioned to build strong partnerships based on shared goals, trust, and mutual benefits.
4. **Capacity Building**: the project have invested significant time and resources in building the capacity of stakeholders involved in scaling. Adequate documentation has also been provided. Hence, the stakeholders are fairly empowered to support the scaling up to new communities within their regions.
5. **Adaptive Management**: They would be need to design and implement an adaptive management approach that allows for continuous monitoring, evaluation, and learning throughout the scaling process. Use data and feedback to make informed decisions and adjustments as needed.
6. **Community Engagement**: The local communities are already engaged and involved. Their participation, ownership, and feedback were taken into consideration in designing the training materials used in training then and now at their disposal to use to conduct their own trainings. And this would be beneficial in the scaling process.
7. **Monitoring and Evaluation**: They would need to establish a robust monitoring and evaluation systems to track progress, measure impact, and identify lessons learned during scaling. In this way, gather evidence-based data to assess effectiveness, inform decision-making, and communicate results to stakeholders.
8. **Resource Mobilization**: They would be the need to develop a resource mobilization strategy to secure funding, technical support, and other resources needed for scaling. Diversify funding sources and explore innovative financing mechanisms to sustainably finance the scaled-up process.

By following these recommendations and guidelines, the nursery managers would be able facilitate the scaling up to reach more beneficiaries, achieve greater impact, and contribute to advancement of ecosystem restoration in the West, South and Extreme North Regions of Cameroon.

Activity 3.1. Stakeholders (forestry department, seed collectors, community nurseries, small FGR agri-businesses) use recommendations from the provenancing strategy to restore new sites

As described above, we have produced seedlings from seeds collected from 33 priority tree species for the project this year. The seedlings collected were used to produced nearly 20 000 seedlings that we are currently being planting on selected farms in West and Central Cameroon

as well as in 300 degraded sacred forests. These seedlings are tagged with individual QR code generated for each seedling and their performance monitored over time.

Throughout Y3 while conducting studies and trainings in West, South and Sahelian regions of Cameroon, we had several working sessions with nursery managers and community nursery operators. Their worries and concerned guided the formulation of the training module titled Ecosystem Restoration, Record Keeping and Marketing Strategies. And during the training reported in above, small-scale nurseries were empowered to effectively:

- collect and propagate adapted and representative germplasm to support biodiversity conservation, ecosystem restoration, and sustainable development initiatives within regions and beyond.
- establish and manage agroforestry systems to contribute to conservation efforts and sustainable development initiatives.
- promote sustainable land management practices including agroforestry, restore degraded landscapes, and generate economic opportunities while conserving biodiversity and enhancing ecosystem resilience.

Activity 3.2. Nursery managers, managers of seed collections, seed centers, and forestry department personnel have improved their capacity to manage increased planting and survival of priority species via (i) technical assistance and mentoring from the project and (ii) a written protocol for management of native FGR.

The seeds collectors trained by the project have used MyGeoTree Collector app to collect seeds from 500 trees belonging to 33 priority species targeted by the project mostly in West, Central and Southern part of the Cameroon during the production season (Figure 8). The seeds collected were used to produce around 20 000 of seedlings in nurseries trained by the project.

Seeds were not collected in the Extreme North because of the difference in rainfall pattern with the other regions. Priority tree species in the extreme north are currently flowering and the seeds collectors are ready to collect seeds after fructification and maturation.

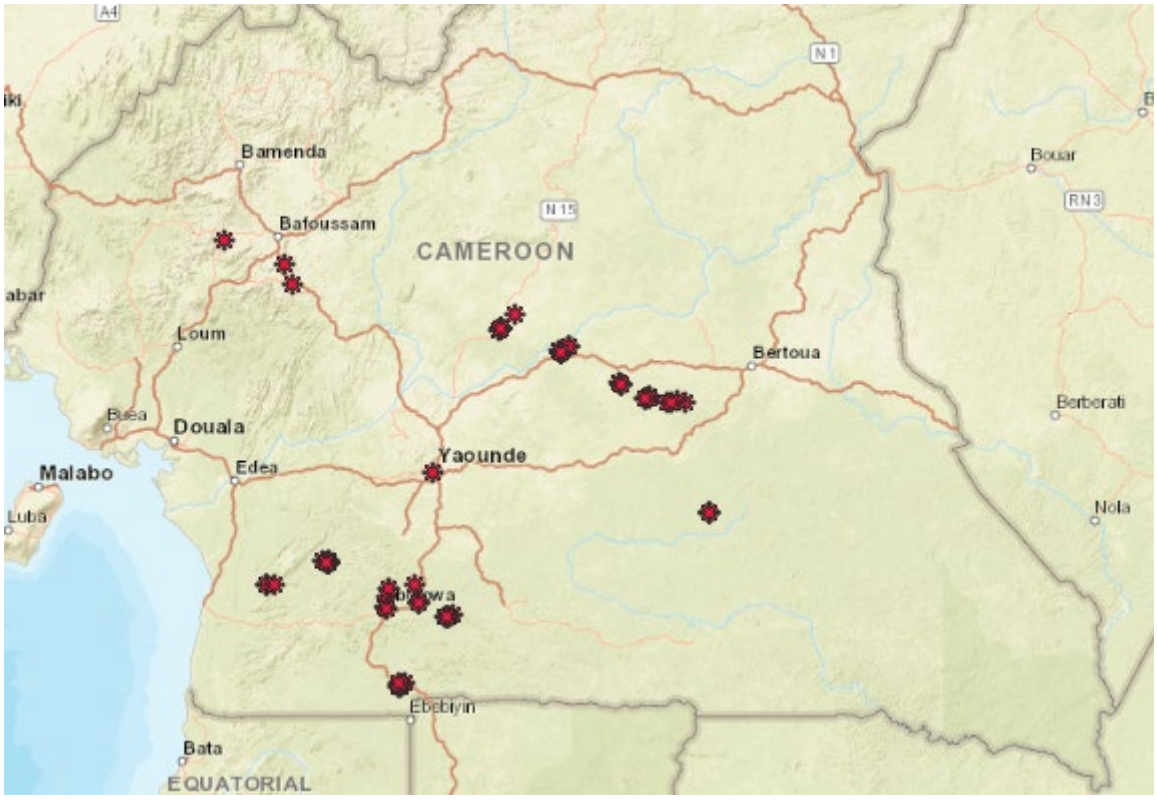

Figure 8: Distribution of mother trees from 33 priority tree species

Seeds collected belongs to the following priority species *Afzelia Africana, Afzelia bipendensis, Allanblackia floribunda, Anacardium occidentale, Annona senegalensis, Antrocaryon klaineanum, Baillonella toxisperma, Bombax buonopozense, Canarium schweinfurthii, Cassia siamea, Cola acuminata, Cylocodiscus gabonensis, Diospyros crassiflora, Erythrophleum ivorense, Garcinia kola, Gmelina Arborea, Guibourtia sp., Irvingia grandifolia, Maesopsis eminii, Milicia excelsa, Milletia laurentii, Monodora myristica, Moringa oleifera, Pentaclethra macrophylla, Pericopsis elata, Picralima nitida, Ricinodendron heudelotii, Scorodophleus zenkeri, Terminalia mantaly, Tetrapleura tetraptera, Uapaca guineensis, Vitex grandifolia,* and *Voacanga Africana.*

Activity 4.2. Stakeholders (forestry department, seed collectors, nursery managers, small FGR agri-businesses, community nurseries) use the SeedIT app's verification of quality function to negotiate better prices for FGR along existing value chains.

This is planned to be executed at the end of the production season in end November.

Activity 4.3. New livelihood options for community-based nurseries involving native FGR have been explored, tested, or begun.

This is planned to be executed at the end of the production season in end November.

Activity 4.4. Baseline socio-economic study carried out in Year 1 and repeated in Year 3 to understand the impact of production and of good quality seedlings of native species on different stakeholders, including an analysis of the forward and backward economic multipliers within the specific value chain. The study will include an assessment of the economic returns for the various actors within specific value chains.

A study titled determination of perceived traits of superior native species trees fit for germplasm, collection, and production for landscape restoration in West, South, Sahelian regions of Cameroon.

A total of 602 persons were interviewed in Sahelian region (351), South region (127), and West region (124). Tables 1 - 4 present characteristics of interviewees in all study regions.

Table 1: Gender distribution of interviewees by percentages in the Sahelian, South and West regions, Cameroon

Gender	Sahelian	South	West	Total
Female	59.3	29	28.3	
Male	40.7	71	71.7	
Total	**351**	**127**	**124**	**602**

Of a total of 602 interviewees, the participation of women in the Sahelian regions was twofold more compared to women in the South and West regions of Cameroon. The reverse was true for men's participation in the South and West regions.

Table 2: Family situation of interviewees by percentage in the Sahelian, South and West regions, Cameroon

Category	Sahelian	South	West	Total
Single	13.0	26.8	6.5	
Divorced	0.9	0.0	0.8	
Married	84.4	70.9	87.1	
Widowed	1.7	2.4	5.7	
Total	**347**	**127**	**124**	**598**

From a total of 598 interviewees, Table 2 portrays that all categories of family participated in the study. Most interviewees where married followed by those who were single, widowed and lastly divorced.

Table 3 Educational Status of interviewees in the Sahelian, South and West regions, Cameroon

Category	Sahelian	South	West	Total
Unschooled	33.4	21.3	22.0	
Primary	29.7	44.9	31.7	
Secondary School	32.9	22.8	27.6	
Technical School	0.0	3.2	0.0	
Polytechnic	0.0	1.6	11.4	
University	4.0	6.3	7.3	
Total	**350**	**127**	**123**	**600**

Of 600 interviewees, Table 3, the highest education attained was secondary school across the Sahelian, South and West regions and almost a third of the interviewees never went to school.

Table 4 Occupation of interviewee in the Sahelian, South and West regions, Cameroon

Type	Sahelian	South	West	Total
Agriculture	78.6	68.5	46.8	
Other forms of Agriculture	0.3	30.7	52.4	
Hunter/Herbalist	0.0	0.8	0.0	
Others	21.1	0.0	0.8	
Total	**351**	**127**	**124**	**602**

Of the 602 interviewees (Table 4), most practice agriculture as their main occupation in the Sahelian regions. And in the West and South regions, there also practice other forms of Agriculture.

Data on choice of species cultivated, local knowledge on agroforestry practices as well as capacity building needs of key stakeholders (nurseries, seeds collectors, communities, and local partners) were collected.

Results from the West region of Cameroon revealed that, forests and species management relied on farmer assisted natural regeneration techniques where farmers maintain trees found naturally growing on farms disposed by either human, animals or the wind, enrichment planting to increase trees population on the landscape like establishment of live fences around the land, planted around homesteads as home garden, planted on farm and also planting to enrich and increase species diversity in secret forests.

Results from the South region of Cameroon revealed that forests and species management rely on both natural regeneration and farmer assisted natural regeneration techniques. Species in primary forests grow naturally without human assistance whereas those in agroforestry systems disposed by humans, animals, the wind or water are maintained by farmers. In some cases, farmers intervene by enrichment planting to increase tree population on the landscape like the establishment of live fences around the land, planted around homesteads as home garden or planted on farm to either increase species diversity, protect the soil and enhance its fertility or to create shelter. The main native species observed were *Dacryodes edulis, Irvingia gabonensis, Irvingia wombulo, Garcina kola, Cola acuminata, Ricinodendron heudelotii, Annickia chloranthia* etc). Native tree species of high nutritional, economic and medicinal value like *Cola acuminata, Garcinia kola, Ricinodendon heudelotii, Annickia chlorantha, Afrotyrax lepidophyllus, Baillonella toxisperma, Monodora myristica,* were equally observed. Prunings from most of these species are equally used as energy in household for heating, cooking and lighting.

In the Sahelian regions of Cameroon, that results revealed that forests and species where also managed using the farmer assisted natural regenerated technique. This is complemented by planting trees in Sahelian parkland system, homegarden. Agroforestry systems that are distinguishable included but not limited to:

- matured native trees found on croplands, and on the rocky hills often referred in literature as Sahelian parklands.
- shelter trees around homesteads of referred to as homegardens.

Typical species found in both Sahelian parkland and homegardens agroforestry systems include, *Adansonia digitata*, *Anacardium occidentale*, *Khaya senegalensis*, *Vitellaria paradoxa*, *Balanites aegyptiaca*, *Ziziphus mauritiana*, *Tamarindus indica*, *Diospyros mespiliformis* and *Ficus gnaphalocarpus* top the list of most populated native trees species that commonly found.

Other tree-based systems observed include some predominantly monoculture plantations of *Anacardium occidentale, Eucalyptus globulus and Azidirachta indica, Mangifera indica, Citrus spp.*

Figure 9. Typical Sahelian home gardens, Sahelian region Cameroon.

Figure 10 Planted tree of Azidirachta indica, Sahelian region, Cameroon.

Results on socio-economic returns from tree seed and seedling supply systems suggests that stakeholders perceived nutritional, medicinal, and economic gains are key determinants that influence the selection of high-quality germplasm of priority native species fit for germplasm collection and multiplication for landscape restoration. Hence there is an urgency to develop seed and seedling supply systems to ensure the availability of quality diverse tree species to meet the diverse needs of stakeholders. This will in return provide income and enhance the livelihoods of the different stakeholders like nursery managers and farmers. With an effective seed supply system, nursery managers would not only generate income, but they also create jobs for the unemployed in the community through the establishment of diverse tree-based enterprises. The resultant effect would be the emergence of beautiful tree-based landscapes and enterprises like woodlots, orchards etc. which sometimes serve as touristic and leisure arenas with distinct microclimates and at the same time create economic opportunities for community members, thereby reducing their reliance on traditional agriculture. In conclusion, tree seed supply systems play a vital role in driving the socio-economic returns of nursery operators, cooperatives, and communities engaged in agroforestry activities.

The results of the analysis of training needs revealed the lack of knowledge and techniques in seed collection and nursery techniques and marketing are the key factors that hinder silvicultural practices hence landscape restoration. In addition, the lack of a permanent seed

and seedlings market is a disincentive to seed collection and nursery activities. These results guided the designing and development of training materials for nursery managers in West, South and Sahelian zones of Cameroon reported in 2.2 above.

The assessment of the economic returns for stakeholders using MyFarmTree applications is planned to be carried out in December at the end of the production seasons.

3.2 Progress towards project Outputs

Output 1. Stakeholders (smallholders, seed collectors, nurseries, seed centers, farmers' cooperatives, NGOs, government) evaluate trade-offs and synergies between different land uses and species to identify 30+ priority native tree species proven to yield significant livelihood, productivity, and environmental benefits compared to exotic tree species

This output has been fully achieved already and reported on in the previous annual report.

Output 2. Seed collectors, nurseries, seed centers, and the government stakeholders gain the capacity to document, verify, and track the performance and quality of valuable tree species native to Cameroon

- We have continued to integrate feedback received from engagement with different stakeholders involved in the native seed systems and using the applications (MyGeoTree Collector, MyGeoTree Nursery, MyGeoFarm). The apps are even more user-friendly now with better functionalities.
- Indicator 2.1. Completed. MyGeoTree Collector, MyGeoTree Nursery and MyGeoFarm are available on Google PlayStore.
- Indicator 2.2. New training material targeting specifically nurseries managers have been developed (Annex 4). 3 training sessions were organised for nurseries managers. 30 new training sessions were also organised for seeds collectors.
- Indicator 2.3. 1082 seed collectors and 140 nurseries were trained and are now using the applications. Upon installing the apps and joining the Cameroon channel, any user can see on a map the geographical locations of the users registered.
- Indicator 2.4. We have already engaged with policy makers from the Ministry of Forestry and Wildlife and the Ministry of Environment concerned. We have collected data on existing policies and are working to propose a scaling guideline integrating existing policies and practices. A workshop will be organised in December 2024.
- Indicator 2.5. We have exceeded the target (1000) by training 2091 stakeholders. This number will increase with new users requesting to be trained. Tracking the performance of seedlings in the field and training stakeholders to do it can only be done in December as seedlings were planted in June-July 2024.

Output 3. The capacity of key stakeholders to manage increased planting and survival of priority species in the future is enhanced

- Indicator 3.1. Field trainings were provided to nurseries managers and local stakeholders about the importance of planting the right species and seed sources matching the planting sites and how to get that information from the D4R outputs.
- Indicator 3.2: We have already built the capacity of 140 nurseries among the 210 inventoried and two seeds centers. An additional training is planned in Garoua in the North of Cameroon and the suitable period is October (rainy season) to unable us to train them on agroforestry practices and also to collect seeds.
- Indicator 3.3: Data on performance of seedlings in partners nurseries are being collected now to analyse. Monitoring of seedlings planted in planting sites can only be done in December 2024 after half year planting..

Output 4. Increase in livelihoods for smallholder tree farmers, local seed businesses, seed cooperatives, and community nurseries driven by increasing Government demand for, and largescale procurement of, bulk quantities of high quality, native tree species seed to fulfil urgent national restoration commitments.

- Indicator 4.1: Completed previously.
- Indicator 4.2: A database of current users of the apps is available. Upon joining the apps, any new users can seed the location of the other users and their names.
- Indicator 4.3: Achieved.
- Indicator 4.4: This work is underway and will be presented in the final report.
- Indicator 4.5: This is underway and will be presented in the final report.

3.3 Progress towards the project Outcome

The project is on track to fully achieve its outcome if somewhat delayed and all three indicators are measurable.

Indicator 0.1. By Month 36, the Ministry of Forest and Wildlife (MINFOF) has access to, and uses, data on the genetic diversity, quality, and performance of native priority tree species to guide national and regional-level landscape restoration initiatives, from policy to budgeting and public procurement.

The outcome will be fully achieved, even to a level more than originally planned.

Completion and release online of the Diversity for Restoration (D4R) tool for Cameroon is a positive impact. The tool brings to the attention of different stakeholders (e.g. donors, restoration practitioners etc.) available data on 276 native trees species important to be used for forest landscape restoration in Cameroon.

Also, the listing of 76 priority tree species that could deliver multiple livelihood and environment benefits is a great achievement for their future valorisation and promotion in native tree plantings.

We have now a database of 1082 seed collectors trained on best practices to collect and document seeds collection.

We also have a database of 140 trained on good seedlings propagation methods and record keeping using MyFarmTree Nursery apps.

We are creating a platform to connect seeds suppliers and users that will facilitate the exchange of diversity of native species and their planting material to end users.

We are engaged in discussion with MINFOF to integrate the use of the applications to existing policies and practices to monitor harvest and trade of non timber products.

0.2. At least 1,000 seed collectors (of which 50 % are female) use the SeedIT (MyGeoTree) app to document, value, and verify the quality of the seeds they collect by month 36.

1 951 seeds collectors (40 women) and 140 nurseries are using the applications.

03. By month 36, at least 200 seed centers, national collections, and nurseries have increased their stock of 30 + priority tree species genetic resources whose quality,

performance, and key genomic and phenomic characteristics have been fully identified, mapped, and documented, creating seed collections that are high quality, adapted to local growing conditions, and perceived as valuable in the local economy.

We are already working with 140 nurseries and 2 seed centers. The remaining stakeholders will be trained in Garoua with the rainy season in October.

3.4 Monitoring of assumptions

Outcome level
Assumption 0.1 National stakeholders remain committed to engage in enhancing diversity of native tree species on degraded land.

Mitigation statement:

The Government of Cameroon is committed to increase the use of native trees in restoration activities. We will train junior forestry officers who will provide long term commitment.

Comment: This assumption still holds true. The Government of Cameroon represented by the Director of Forest (Chair of the Project Steering Committee) as well as the Ministry of Environment, Nature Protection and Sustainable Development implementing landscapes restoration projects in Cameroon are fully engaged and always attended and preside the release D4R tool as well as the MyGeoTree apps.

Assumption 0.2. National forestry department and MINFOF value and use the information collected to select the most superior, well-adapted, and productive varieties of tree genetic material to restore degraded landscapes in Cameroon.

Mitigation statement:

Public and private stakeholders involved in native tree seed supply systems are committed to documenting and using genetically diverse and adapted planting material for restoration activities.

Comment: The assumption still holds true. Public institutions such as the National Forestry Development Agency (ANAFOR) and the National Forestry School (ENEF) as well as private nurseries are interested in being train and using our tools to guarantee that planting materials are of good quality.

Assumption 0.3. Demand for delivery of multiple ecosystem services from restoration increases.

Mitigation statement: Demand for diversified local food sources, and climate resilient agroforestry systems is increasing, especially in the face of COVID 19.

Assumption 0.4 There is continued availability of public financing for landscape restoration efforts in national budget.

Mitigation statement: Public and especially private financing for landscape restoration is growing rapidly, in addition to working with government partners, we will engage with private investment through for example TerraMatch, to ensure adequate financing is linked to improved seed systems in the country.

Comment: The assumption is still true. In fact, a GEF project has started in Cameroon to plant native species in farmlands using data generated from this project, and there are strong synergies between these projects (myfarmtrees.org).

Assumption 0.5 Mobile phone penetration and usage rates in target areas continue to be =/> 86%.

Mitigation statement: Mobile phones will be provided to key local stakeholders, during project, but project success is ensured by partners' role. Mobile phone usage is still increasing drastically and high-speed internet connection is being deployed across the country

Comment: The assumption still holds true. The mobile phone penetration rate was 86% in 2016 is still increasing.

Output 1

Assumption 1.1 MINFOF has the capacity and resources to manage the Cloud- hosted database.

Mitigation statement:

The database will be backup on Bioversity servers and available online for users

Comment: the assumption still holds true. MINFOF has a bilingual website https://www.minfof.cm/ and the capacity to hold the database of their server.

Assumption 1.2 There are no disagreements between male and female stakeholders about use priority of the tree species to be included in the list of 30+ priority species.

Mitigation statement: A key focus will be on equitable benefit sharing at the household level, with an emphasis on diversification as a resilience strategy

Comment: The assumption still holds true. Both women and men were consulted to finalise the priority list of 76 priority species.

Assumption 2.1 High speed internet penetration and usage are increasing even in rural areas

Mitigation statement: SeedIT mobile app can be used offline to record data in very remote areas where internet is not accessible

Comment: The assumption still holds true as the applications developed can used offline.

Assumption 2.2 Capacity building and training are accepted and valued by local stakeholders.

Mitigation statement: Local stakeholders will receive information on the demand and value of improved seed systems, and demonstrations of livelihood benefits, to incentivize adoption. We will also provide training and manuals at 12 months, with a second phase of evaluation and updated training at 24 months to gauge adoption success

Comment: The assumption still holds true. As explained in the report, we have already identified thousand stakeholders willing to get the training to collect seeds of native species and be linked to potential markets.

Assumption 3.1 Female participants in capacity building activities are able to set aside time to attend and feel comfortable/encouraged to participate by both their families and the project.

Mitigation statement: Through documentation and shared evidence on changes in income levels at the household level, both male and female household members will be incentivized to attend training.

Comment: The assumption still holds true. We are also encouraging females to get the training. We will also be running separate training only for women especially in the northern part of the country to respect local customs.

Assumption 3.2 MINFOF and the Forestry Department remain committed to the principle of utilizing native Cameroonian FGR for future landscape restoration initiatives.

Mitigation statement:

Local populations benefiting from restoration outcomes are always committed to the use of native tree species

Comment: The assumption still holds true. We have a strong implication of the two Ministries in charge of landscape restoration involved in the PSC and we also liaise with their officers on the ground.

Assumption 3.3 MINFOF and the Forestry Department demonstrate their commitment by sourcing native FGR for restoration from within local seed centers and nurseries, switching from imported exotic species to native, locally- adapted ones.

Mitigation statement:

NGOs, development agencies, community organisations active in restoration on the ground will also promote the use of native species and good seed sources

Assumption 4.1: Demand for supply of seeds and delivery of multiple ecosystem services for restoration efforts continues to increase, creating an important pull effect on native tree seed supply at community level.

Comment: The assumption still holds true. We have knowledge of government agencies planning to use native species in landscapes restoration. Evidence will be provided in next year annual report.

Assumption 4.2: Buyers along the value chain value native Cameroonian FGR and accept the verification methodology of the central database and SeedIT app as factors in price-setting.

Comment: The assumption still holds true. Seeds collectors that we are training and willing to use MyGeoTree app for verification would be in a national database recognised by MINFOF (the Ministry of Forestry and Wildlife).

Assumption 4.3: Local communities' members respond positively to the initiative and are actively engaged in various stages of the value chain (i.e. production, management, collection, processing).

Comment: The assumption still holds true. Local communities are eager to get trained to use the app to collect, document and trade their seeds with other users in needs. Evidence will be provided in next year report.

Assumption 4.4: Supply of locally produced, healthy and natural foods or bio-organic products meet consumers demand in local markets.
Comment: The assumption will be assessed next year.

3.5 Impact: achievement of positive impact on biodiversity and poverty reduction

The project is contributing to the following impact stated in the original application form

"**Impact:** Genetically-diverse, climate-resilient, and locally-adapted priority tree species germplasm is available for, and integrated into, landscape restoration efforts, delivering multiple livelihood and environment benefits for rural populations."

Impact of biodiversity

The pressure on Cameroon to meet its AFR100 target (restoring 12 million heactares of degraded lands by 2030), coupled with lack of access to information about local tree diversity, has translated to reforestation that favours easily-available but poorly-suited exotic species (eucalyptus, pines) over native biodiversity.Our project is working to reverse this trend and make a great contribution to the conservation of valuable native tree species. Indeed, the Diversity for Restoration (D4R) tool provide data on 276 Cameroonian native species providing different benefits and ecosystem services for the populations. Among them we have further prioritise with communities 76 species to develop the seed system and promote their use in landscape restoration. Among the priority species, we have six species on Appendix II of CITES (*Prunus africana, Pericopsis elata, Pterocarpus erinaceus, Guibourtia demeusei, Guibourtia pellegriniana,* and *Guibourtia tessmannii*) and a further 15 species (*Afzelia Africana, Entandrophragma candollei, Entandrophragma cylindricum, Entandrophragma utile, Garcinia kola, Garcinia lucida, Irvingia gabonensis, Khaya senegalensis, Milicia excelsa, Nauclea latifolia, Pericopsis elata, Prunus africana, Pterocarpus erinaceus, Ricinodendron heudelotii, Vitellaria paradoxa*) which are listed as either threatened or vulnerable by the IUCN red list (www.iucnredlist.org).

By addressing critical gaps in the seed system, developing capacity and tools to select the right tree species and seed sources adapted to planting sites, the project is promoting the use of such native forest genetic resources (FGR) and their conservation. The failure to consider the genetic and species diversity of seed sources undermines the ability of tree planted and or restore sites to adapt to environmental change and deliver ecosystem benefits to local people.

Impact on poverty reduction

As documented in the previous annual report, the 76 priority species provide numerous products and ecosystems services for rural populations including food, fodder, medicine, fuelwood, timber, edible caterpillars, fertility to soil, shade (for cacao & coffee) etc. While those species are very important in the lives of poor farmers, the seed system is completely lacking, and they are not promoting in tree planting. The possibility now to have access to good planting material of the desired native species, and the creation of new value chain for native tree seeds is surely contributing to poverty reduction.

4. Project support to the Conventions, Treaties or Agreements

The national institutions hosting the secretariat of CBD, CITES and ABS were always invited to attend the workshops organised by the project so far. Both the Ministry of Environment (hosting CBD and ABS focal units) and the Ministry of Forest and Wildlife (hosting CITES) are member of the project steering committee.

We have been invited to contribute to the preparation of the next Cameroon Country Report on the International Plant Genetic Resources for Food and Agriculture by the Ministry of Agriculture recently.

The Government of Cameroon is also now committed to create a national genebanks and see the works we are doing as important on tree genetic resources.

5. Project support for multidimensional poverty reduction

The project is directly contributing to poverty reduction through targeting smallholder farmers and rural communities in some of the poorest communities in Cameroon. The project will enable them to generate new livelihood options from seed collection and propagation of native trees. These communities have already been identified under activity 1.5, 1.6 and 3.2.

These beneficiaries include women and youth which are among the most marginalised in Cameroon.

The increased income generation from these activities, such as from informal nurseries and sale of seeds will be quantified in the activities 4.1. These are expected to be direct poverty impacts to these stakeholders. We also expect indirect benefits to livelihoods through diversified income streams form native trees uses and value chains of tree-based non-timber and timber products in the long-term, which will enhance resilience of these communities to financial shocks.

6. Gender Equality and Social Inclusion (GESI)

Please quantify the proportion of women on the Project Board[5].	Woman 1 (25%) and 3 men (75%)
Please quantify the proportion of project partners that are led by women, or which have a senior leadership team consisting of at least 50% women[6].	PEM: led by 1 man (33%) and 2 women (66%) ABIOGeT: 1 woman (33%) and 2 men (66%) AFAF: 50% woman LaboSyst: 1 man (50%) 1 woman (50%) University of Aberdeen: 0%

GESI Scale	Description	Put X where you think your project is on the scale
Not yet sensitive	The GESI context may have been considered but the project isn't quite meeting the requirements of a 'sensitive' approach	
Sensitive	The GESI context has been considered and project activities take this into account in their design and implementation. The project addresses basic needs and vulnerabilities of women and marginalised groups and the project will not contribute to or create further inequalities.	
Empowering	The project has all the characteristics of a 'sensitive' approach whilst also increasing equal access to assets, resources and capabilities for women and marginalised groups	X
Transformative	The project has all the characteristics of an 'empowering' approach whilst also addressing unequal power relationships and seeking institutional and societal change	

[5] A Project Board has overall authority for the project, is accountable for its success or failure, and supports the senior project manager to successfully deliver the project.

[6] Partners that have formal governance role in the project, and a formal relationship with the project that may involve staff costs and/or budget management responsibilities.

7. Monitoring and evaluation

The M & E plan for the project follows the specific activities and outputs of the logframe and is reviewed by the PSC on an annual basis. Having completed the baseline assessment of the existing capacity to deliver genetically diverse climate-resilient planting material of native trees we have a clear idea of the number of stakeholders which require capacity development through output 1. Delivery of the project outcome will be monitored through

- MINFOF documents pertaining to improved seed sourcing and selection
- National seed system database
- Improved policies
- Area of land under improved tree planting
- Number of Female farmers using MyGeoTree app
- Reports from nurseries, inventories and sales reports from seed centres

Gender: Bioversity's Gender Specialistis conducting a Gender Analysis (GA) as part of the M&E implementation for the project, with a focus on ensuring female participation targets are met. We are monitoring:

- Number of women and youth engaged in seed collection
- Number of women and youth trained in app use
- Number of women and youth actively engaged in FCDs.

Adaptive Management: Progress towards the M&E framework and workplan will be measured and reported annually (all partners, led by Bioversity).
M&E plan and performance against verifiable indicators will be reviewed in the annual PSC meeting (March 2023).

Results-Based Management:

Bioversity continually uses a comprehensive RMT (Results-Based Management Tool) linking the monitoring systems of the budget office, the grants administration unit, and the proposal development team with the deliverables for which the organization is responsible under its SRF (Strategic Results Framework), as well as for individual grant awards with funders and partners. The status of this will be reported at the Annual PSC meeting. The M&E workplan and reporting is shared will all partners for review before Annual meeting.

8. Lessons learnt

Administrative and management

We had some challenges to kick start the project for reasons mentioned in section 9 Actions taken in response to previous reviews, this had knock on effects due to seasonal constraints, but we anticipate no major constraints on final project outcomes. We acknowledge that from a reporting point of view we had a failure to meet reporting requirements, deadlines and have not adequately reacted the the recommendations of the MMR shared in April 2024.

Technical

Species prioritisation with population and local populations and different stakeholders resulted in an increase of the number of priority species. we are now working with 76 species instead of the 30+ planned originally. This shows a great interest for the project and the importance of considering such native species in landscape restoration activities.

The evaluation of the seed system revealed a very week or almost non-existant seed system for many native species that was beyond our expectation.

Finally, the app development process was more time consuming due to the need to adapt it to different users and meet their specific needs. But in the long-term this is leading to a more effective and impactful digital platform that meets local needs.

The points mentioned showed that in hindsight we should have allocated more time for app development and redesign for local needs, in the original proposal. But we are confident that we will deliver on all outputs for the benefits of Cameroon.

9. Actions taken in response to previous reviews (if applicable)

- **What changes were made to the programme management approach following the first change request? (new tools, meeting frequency, resourcing levels etc.)**

Regarding project completion we recognize that there was a considerable delay in the starting of activities. We have received the draft Grant Acceptance Letter in September 2021 while the start date of this grant was July 1st 2021. The letter was signed in October and funds were received in November 2021. This coupled with dealing with seasonality of seed production and delays in the completion of the MyGeoTree application development, created a cascading effect of delays. We have been catching up on these delays over the last year but as is demonstrated by financial reporting, implementation is now finally getting back on track, and we do not expect to return funds to Darwin Initiative (even from the seed collection budget) and spend for 2022/23 is well on track. Following the initial trainings with the MyGeoTree applications for seed collection and nurseries we anticipate a rapid progress in 2023 on project implementation.

- **What assurances can you offer that all activities planned for Year 3 will be delivered to a high standard and on time?**

We fully appreciate Darwin's continued commitment to this challenging but highly impactful project. We also acknowledge that the reporting on the project has been inadequate and late. To this end we have made some significant changes to the project management specifically to improve the coordination of the reporting with a senior staff member oversighting the project reporting. In addition, to ensure effective delivery of the project milestones over the coming year we have set increased frequency of internal and partner meetings to record progress, with early warning system in place for enabling corrective action as necessary. Based upon this we can fully assure Darwin that the following activities will be implemented in 2024 to a very high standard and partners are fully engaged and we have all the necessary steps in place to minimize additional unforeseen challenges.

10. Risk Management

There is no risk to report.

10. Sustainability and legacy

The release of the D4R tool as well as the recent unveiling of the applications (MyGeoTree Collector, MyGeoTree Nursery and MyGeoFarm) have generated a lot of interests from different stakeholders. Many partners are interested to be trained to use the apps to manage seeds collections. We will share additional evidence in the final report

11. Darwin Initiative identity

The project has consistently used the Darwin logo and referenced the Darwin Initiative in all workshops, launch meetings and the DI has been distinctive as the main funder of this project, with national partners all aware of the DI as the funding body for the project in Cameroon. DI has and will be flagged in any social media associated with promotion of the project and in any project websites or videos. Partners in the project have been trained in reporting according to the Darwin Initiative's requirements.

The Ministry of Forestry and Wildlife and the Ministry of Environment, Nature Protection and Sustainable Development are all involved in the project steering committee and recognised the value of this project and its contribution to Cameroon to strengthen the seed system for native species. The project and Darwin support were also included in presentation at IUFRO world forestry congress in June 2024.

12. Safeguarding

Has your Safeguarding Policy been updated in the past 12 months?	Yes/No
Have any concerns been reported in the past 12 months	Yes/No
Does your project have a Safeguarding focal point?	Yes/No [*If yes, please provide their name and email]*
Has the focal point attended any formal training in the last 12 months?	Yes/No [*If yes, please provide date and details of training*]
What proportion (and number) of project staff have received formal training on Safeguarding?	Past: % [and number] Planned: % [and number]
Has there been any lessons learnt or challenges on Safeguarding in the past 12 months? Please ensure no sensitive data is included within responses.	
Does the project have any developments or activities planned around Safeguarding in the coming 12 months? If so please specify.	
Please describe any community sensitisation that has taken place over the past 12 months; include topics covered and number of participants.	
Have there been any concerns around Health, Safety and Security of your project over the past year? If yes, please outline how this was resolved.	

13. Project expenditure

Table 1: Project expenditure <u>during the reporting period</u> (1 April 2023 – 31 March 2024)

Project spend (indicative) since last Annual Report	**2023/24 Grant (£)**	**2023/24 Total Darwin Costs (£)**	**Variance %**	**Comments (please explain significant variances)**
Staff costs (see below)	[redacted]			Some staff's contribution during this period was reduced, as part of their

				contribution would be required later and not at this stage
Consultancy costs				Some staff's contribution during this period was reduced, as part of their contribution would be required later and not at this stage
Overhead Costs				These are in respect with the overall project's actual expenditure for the period
Travel and subsistence				More field trips were made and there was an overall increase in travel costs, fuel, accommodation and daily subsistence.
Operating Costs				To ensure that stakeholders understand the MyFarmTree applications and use them effectively in the field, we have decentralised trainings at District/County levels where priority tree species for the project occurs. As a results, the number of trainings has increased and therefore more costly than initially anticipated.
Capital items (see below)				The anticipated capital purchases were not made in this period
Others (see below)				The travel and operations budget under this line was rather incurred in the travel & subsistance line
TOTAL	**£152,879.4**	**£180,211.8**	**18%**	

Table 2: Project mobilised or matched funding during the reporting period (1 April 2023 – 31 March 2024)

	Secured to date	Expected by end of project	Sources
Matched funding leveraged by the partners to deliver the project (£)			
Total additional finance mobilised for new activities occurring outside of			

the project, building on evidence, best practices and the project (£)			

14. Other comments on progress not covered elsewhere

15. OPTIONAL: Outstanding achievements or progress of your project so far (300-400 words maximum). This section may be used for publicity purposes.

I agree for the Biodiversity Challenge Funds to edit and use the following for various promotional purposes (please leave this line in to indicate your agreement to use any material you provide here).

File Type (Image / Video / Graphic)	File Name or File Location	Caption including description, country and credit	Social media accounts and websites to be tagged (leave blank if none)	Consent of subjects received (delete as necessary)
				Yes / No
				Yes / No
				Yes / No
				Yes / No
				Yes / No

Annex 1: Report of progress and achievements against logframe for Financial Year 2023-2024

Project summary	Progress and Achievements April 2023 - March 2024	Actions required/planned for next period
Impact Genetically-diverse, climate-resilient, and locally-adapted priority tree species germplasm is available for, and integrated into, landscape restoration efforts, delivering multiple livelihood and environment benefits for rural populations.	Training have been carried out on	
Outcome High-quality data on genetically-diverse, climate-resilient, native tree species makes landscape restoration efforts in Northern Central and Southern Cameroon more effective, sustainable, climate-smart, and economically fruitful for the people of Cameroon.		
Outcome indicator 0.1 By Month 36, the Ministry of Forest and Wildlife (MINFOF) has access to, and uses, data on the genetic diversity, quality, and performance of native priority tree species to guide national and regional-level landscape restoration initiatives, from policy to budgeting and public procurement.	We are creating a platform to connect seeds suppliers and users that will facilitate the exchange of diversity of native species and their planting material to end users. We are engaged in discussion with MINFOF to integrate the use of the applications to existing policies and practices to monitor harvest and trade of non timber products.	(Continue dialogue with MINFOF to integrate the applications into their policies and practices Organise a national workshop to present the database and promote its wider uses
Indicator 0.2. At least 1,000 seed collectors (of which 50 % are female) use the SeedIT app to document, value, and verify the quality of the seeds they collect by month 36.	1082 seeds collectors (40 women) and 140 nurseries are using now the applications in Cameroon	Monitoring of seeds collected by users, seedlings raised in nerseries and their performance in planting sites will be done at in December and reported in the final report.
Indicator 0.3. By month 36, at least 200 seed centers, national collections, and nurseries have increased their stock of 30 + priority tree species genetic resources whose quality, performance, and key genomic and phenomic characteristics have been fully identified, mapped, and documented, creating seed collections that are high quality, adapted to local growing conditions, and perceived as valuable in the local economy.	2 national seed centers and 140 nurseries were trained for the use of MyGeoTree Nursery app.	Nurseries and seeds centers identified will be trained to use MyGeoTree Nursery app across the country
Output 1 Stakeholders (smallholders, seed collectors, nurseries, seed centers, farmers' cooperatives, NGOs, government) evaluate trade-offs and synergies between different land uses and species to identify 30+ priority native tree species		

Indicator 1.1. Baseline survey of the state of tree seed supply systems completed by month 4	Completed. Baseline survey of seed systems complete and gaps in capacity documented in last year annual report.	Nothing else is required
Indicator 1.2. List of 30+ priority native tree species for restoration identified by stakeholders available by month 6	Completed: Priority list of 76 native tree species identified by stakeholders documented of the previous annual report	Nothing else is required
Indicator 1.3. Validation workshop of findings of the baseline survey and gap analysis by month 7	Completed: field workshops with stakeholders in project sites and through exchanges with key stakeholders from the Ministries of forest and environment (annual report 2021-2022.	Nothing else is required
Indicator 1.4. Detailed knowledge on the use (e.g.: food, fodder, medicine, spice, timber, fuelwood, conservation, etc.), value (nutritional, economic, cultural etc.) of 30+ priority tree species available by month 12	Completed: Initial evaluation of uses through literature review, expert knowledge, and validation in 14 focus groups discussions attended by 140 participants. We have also collected local ecological knowledge of trees species suitable tree species to plant in cocoa production landscape both for shade and different ecosystems services (annual report 2021-2022 and section 3.1. of this report).	Nothing else is required
Indicator 1.5. Provenancing strategy and sources of seeds for each priority tree species identified by month 12	Completed: Seed sources identified and validated D4R platform developed as primary strategy for seed sourcing and provenancing. D4R provide also dynamic distribution and threat maps for each of our priority species (annual report 2021-2023 and www.diversityforrestoration.org).	Nothing else is required
Output 2. Seed collectors, nurseries, seed centers, and the government stakeholders gain the capacity to document, verify, and track the performance and quality of valuable tree species native to Cameroon		
Output indicator 2.1. SeedIT mobile app tested, adapted, and ready for field trial in Cameroon by month 6.	MyGeoTree Collector, MyGeoTree Nursery and MyGeoFarm are available of Google PlayStore https://play.google.com/store/search?q=mygeotree&c=apps	Nothing else is required
Indicator 2.2. Illustrated training manual on smartphone app developed and translated into French and 3 other local languages; and 15 training courses organised for stakeholders involved in the seed supply chain for native species by month 8	New training material targeting specifically nurseries managers have been developed (Annex 4). 3 training sessions were organised for nurseries managers. 30 new training sessions were also organised for seeds collectors	An additional training session for nurseries managers will be organise in the Northern part of Cameroon. The applications will also be taught from October as part of new master's degree programme on Landcsape restoration created at the University of Dschang, Cameroon.

		At the end we will have a fully illustrated manual with feedback from users of the apps
Output Indicator 2.3. 1,000 seed collectors, nursery workers, and forestry department managers use the SeedIT app to log and record data about tree seeds they collect in project sites from month 12	1082 seed collectors and 140 nurseries were trained and are now using the applications. Evidence can be seen by downloading the apps and joining the Cameroon channel.	We will continue to monitor the use and records from this second production season to be able to analyse the patterns of use in the final projet report.
Output Indicator 2.4 National guidelines for future scaling out is published by month 12 and re-evaluated with stakeholders in month 24	We have already engaged with policy makers from the Ministry of Forestry and Wildlife and the Ministry of Environment concerned. We have collected data on existing policies and are working to propose a scaling guideline integrating existing policies and practices. A workshop will be organised in December 2024.	An iteration processes is already ongoing with the Ministries involved. We will have a workshop in December 2024 to validate a guideline
Output Indicator 2.5 The capacity of 1,000 new stakeholders to monitor and track seed quality and seedling performance is built by month 30	We have exceeded the target (1000) by training 1082 stakeholders. This number will increase with new users requesting to be trained. Tracking the performance of seedlings in the field and training stakeholders to do it can only be done in December as seedlings were planted in June-July 2024.	Tracking the performance of seedlings transplanted in the field after between (6 and 8 months in nurseries) can only be done from December 2024.
Output 3. The capacity of key stakeholders to manage increased planting and survival of priority species in the future is enhanced		
Output Indicator 3.1. By Month 12, at least 1,000 stakeholders (forestry department, seed collectors, nursery managers, small FGR agri-businesses) use recommendations from the provenancing strategy to restore new sites		Recommendations from the provenancing strategy will be used for determining the planting sites for seedlings produced by the project
Output Indicator 3.2. By Month 36, at least 200 nursery managers, managers of seed collections, seed centers, and forestry department personnel have improved their capacity to manage increased planting and survival of priority species via (i) technical assistance and mentoring from the project and (ii) a written protocol for management of native FGR.	We have already built the capacity of 140 nurseries among the 210 inventoried and two seeds centers. An additional training is planned in Garoua in the North of Cameroon and the suitable period is October (rainy season) to unable us to train them on agroforestry practices and also to collect seeds.	A training is planned in Garoua, North Cameroon as well as teaching os the apps to students enrolled in a MSC degree programm on landscape restotation at the University of Dschang

Output Indicator 3.3. Metrics of the 30+ priority species seedling germination, survival in nursery and during planting are documented and compared to historic records, pre-project implementation	Delayed because the apps were not ready. This activity will start in Year 2 with the collect and availability of seeds of known origin and traceable in local nurseries Data on performance of sedlings in partners nurseries are being collected now to analyse. Monitoring of seedlings planted in planting sites can only be done in December 2024 after half year planting.	New seed collection will continue to be fully documented by MyGeoTree Collector app. The survival of seedlings planted and tagged in the field will also be done and reported in the final report.
Output 4. Etc. Increase in livelihoods for smallholder tree farmers, local seed businesses, seed cooperatives, and community nurseries driven by increasing Government demand for, and largescale procurement of, bulk quantities of high quality, native tree species seed to fulfil urgent national restoration commitments.		
Output Indicator 4.1. By month 6, the native tree species germplasm value chain (e.g. collectors, processors and storers, nursery managers, distributors, final users etc.) has been mapped, stakeholders involved, and their capacity to meet supply demands and potential opportunities in targeted regions assessed.	Completed in 2022. We have completed the surveys of nurseries identified across the project sites and assessed their capacity to supply germplasm of native tree species. Evidence is provided in section 3.2 of the report.	Nothing else is required
Output Indicator 4.2. By Month 12, at least 1,000 stakeholders (forestry department, seed collectors, nursery managers, small FGR agri-businesses) use the SeedIT app verification of quality function to negotiate better prices for FGR along existing value chains.	A database of current users of the apps is available. Upon joining the platform, a new user can see the location of the other users and their names.	A database of users of the Apps and prices of germplam (e.g. seeds and seedlings) along the supply chain will be published in the final report. for priority tree species.
Output Indicator 4.3. By Month 12 Baseline data on household income generated from collection and propagation of native tree species.	Completed with the survey of 411 households reported in the previous annual report.	Nothing else is required
Output Indicator 4.4. By Month 36 household income from collection and use of FGR's has increased by XY % (exact target to be defined after baseline report)	This work is underway and will be presented in the final report.	A survey of beneficiaries and users of the apps has just started first with nurseries and will continue later with seeds collectors who have completed a full production cycle of seed collection
Output Indicator 4.5. By Month 36, at least 10 new livelihood opportunities are opened up for stakeholders of native FGR value chains (seed collectors, processors, nurseries etc.) in response to (a) primary pull: largescale restoration demand driven by the Government of Cameroon and (b) secondary, more downstream	This work is underway and will be presented in the final report.	A survey of beneficiaries and users of the apps has just started first with nurseries and will continue later with seeds collectors who have completed a

pull of market for NTFPs and timber from mature trees grown from native tree seed.		full production cycle of seed collection

Annex 2: Project's full current logframe as presented in the application form (unless changes have been agreed)

Project summary	SMART Indicators	Means of verification	Important Assumptions
Impact: Genetically-diverse, climate-resilient, and locally-adapted priority tree species germplasm is available for, and integrated into, landscape restoration efforts, delivering multiple livelihood and environment benefits for rural populations.			
Outcome: High-quality data on genetically-diverse, climate-resilient, native tree species makes landscape restoration efforts in Northern Central and Southern Cameroon more effective, sustainable, climate-smart, and economically fruitful for the people of Cameroon.	0.1. By Month 36, the Ministry of Forest and Wildlife (MINFOF) has access to, and uses, data on the genetic diversity, quality, and performance of native priority tree species to guide national and regional-level landscape restoration initiatives, from policy to budgeting and public procurement. 0.2. At least 1,000 seed collectors (of which 50 % are female) use the SeedIT app to document, value, and verify the quality of the seeds they collect by month 36.	0.1.a. MINFOF documents, statements, public budget discussions, memorandum of understanding (MOUs), public procurements, tenders, contracts, and reports. 0.1.b. Presence of national seed source database 0.1.c. Presence of policies and/or strategies relating to seed collection, nursery development, native tree biodiversity, and strategy. 0.1.c. Ha of land under sustainable, native tree cover v. land under exotic, imported tree cover on large scale land restoration plots. 0.2.a. Number of users of the SeedIT app 0.2.b. Number of female users of the SeedIT app 0.2.c. Number of data entries logged on the SeedIT app and sent to cloud-based database 0.2.d. Reports from nursery managers and seed collectors on quality, verification, and price paid for the seed collected.	0.1 National stakeholders remain committed to engage in enhancing diversity of native tree species on degraded land. **Mitigation statement:** The Government of Cameroon is committed to increase the use of native trees in restoration activities. We will train junior forestry officers who will provide long term commitment. 0.2 National forestry department and MINFOF value and use the information collected to select the most superior, well-adapted, and productive varieties of tree genetic material to restore degraded landscapes in Cameroon. **Mitigation statement:** Public and private stakeholders involved in native tree seed supply systems are committed to documenting and using genetically diverse and adapted planting material for restoration activities.

	03. By month 36, at least 200 seed centers, national collections, and nurseries have increased their stock of 30 + priority tree species genetic resources whose quality, performance, and key genomic and phenomic characteristics have been fully identified, mapped, and documented, creating seed collections that are high quality, adapted to local growing conditions, and perceived as valuable in the local economy	0.3.a. Reports on inventory quality and quantity (of 30 + priority tree species genetic resources) at participating seed centers, national collections, and nurseries. Ground truthing of seed collection verification of SeedIT app by independent field validation. 0.3.b. Sales reports from participating centers and nurseries on economic performance of seeds and rootstocks (of 30+ priority tree species genetic resources) documented and monitored via the SeedIT app. 0.3.c. Tenders and contracts from the national and regional governments for tree stock of 30+ priority tree species genetic resources from participating centers and nurseries.	0.3 Demand for delivery of multiple ecosystem services from restoration increases. **Mitigation statement:** Demand for diversified local food sources, and climate resilient agroforestry systems is increasing, especially in the face of COVID 19. 0.4 There is continued availability of public financing for landscape restoration efforts in national budget. **Mitigation statement:** Public and especially private financing for landscape restoration is growing rapidly, in addition to working with government partners, we will engage with private investment through for example TerraMatch, to ensure adequate financing is linked to improved seed systems in the country. 0.5 Mobile phone penetration and usage rates in target areas continue to be =/> 86%. **Mitigation statement:** Mobile phones will be provided to key local stakeholders, during project, but project success is ensured by partners' role. Mobile phone usage is still increasing drastically and high-speed internet connection is being deployed across the country
Output 1: Stakeholders (smallholders, seed collectors, nurseries, seed centers, farmers'	1.1. Baseline survey of the state of tree seed supply systems completed by month 4	1.1 Baseline survey report	1.1 MINFOF has the capacity and resources to manage the Cloud-hosted database.

cooperatives, NGOs, government) evaluate trade-offs and synergies between different land uses and species to identify 30+ priority native tree species proven to yield significant livelihood, productivity, and environmental benefits compared to exotic tree species.	1.2. List of 30+ priority native tree species for restoration identified by stakeholders available by month 6 1.3. Validation workshop of findings of the baseline survey and gap analysis by month 7 1.4. Detailed knowledge on the use (e.g.: food, fodder, medicine, spice, timber, fuelwood, conservation, etc.), value (nutritional, economic, cultural etc.) of 30+ priority tree species available by month 12 1.5. Provenancing strategy and sources of seeds for each priority tree species identified by month 12	1.2 Database and report on the priority species listed 1.3 Report on stakeholders' workshop 1.4 Dynamic distribution and threat maps of priority tree species 1.5. Provenancing strategy reports for priority trees species	**Mitigation statement:** **The database will be backup on Bioversity servers and available online for users** 1.2 There are no disagreements between male and female stakeholders about use priority of the tree species to be included in the list of 30+ priority species. **Mitigation statement:** A key focus will be on equitable benefit sharing at the household level, with an emphasis on diversification as a resilience strategy
Output 2: Seed collectors, nurseries, seed centers, and the government stakeholders gain the capacity to document, verify, and track the performance and quality of valuable tree species native to Cameroon.	2.1. SeedIT mobile app tested, adapted, and ready for field trial in Cameroon by month 6. 2.2. Illustrated training manual on smartphone app developed and translated into French and 3 other local languages; and 15 training courses organised for stakeholders involved in the seed supply chain for native species by month 8 2.3. 1,000 seed collectors, nursery workers, and forestry department managers use the SeedIT app to log and record data about tree seeds they collect in project sites from month 12 2.4 National guidelines for future scaling out is published by month 12 and re-evaluated with stakeholders in month 24.	2.1. Downloads of the SeedIT app already available on Apple iTunes and in Google Play store 2.2. Training manual(s) and training reports 2.3. Database stats (# entries, contributions, completeness % of data, accessibility, visitors, etc.) 2.4. National guidelines for training and future scaling-out plan; and project annual reports and publications	2.1 High speed internet penetration and usage are increasing even in rural areas **Mitigation statement:** SeedIT mobile app can be used offline to record data in very remote areas where internet is not accessible 2.2 Capacity building and training are accepted and valued by local stakeholders. **Mitigation statement:** Local stakeholders will receive information on the demand and value of improved seed systems, and demonstrations of livelihood benefits, to incentivize adoption. We will also provide training and manuals at 12 months, with a second phase of evaluation and

	2.5 The capacity of 1,000 new stakeholders to monitor and track seed quality and seedling performance is built by month 30	2.5 Number of people trained in the use of the SeedIT mobile technology, as evidenced by training report (detailing content of the trainings, number of attendants, feedback from attendants, pre and post training assessment of attendees)	updated training at 24 months to gauge adoption success.
Output 3: The capacity of key stakeholders to manage increased planting and survival of priority species in the future is enhanced	3.1. By Month 12, at least 1,000 stakeholders (forestry department, seed collectors, nursery managers, small FGR agri-businesses) use recommendations from the provenancing strategy to restore new sites 3.2. By Month 36, at least 200 nursery managers, managers of seed collections, seed centers, and forestry department personnel have improved their capacity to manage increased planting and survival of priority species via (i) technical assistance and mentoring from the project and (ii) a written protocol for management of native FGR. 3.3 Metrics of the 30+ priority species seedling germination, survival in nursery and during planting are documented and compared to historic records, pre-project implementation	3.1. Guidelines to implement the provenancing strategy 3.2.1. Protocol for management of native FGR. 3.2.2. Number of stakeholders (e.g. nursery managers, managers of seed collections, seed centers, and forestry department personnel) using the SeedIT app and the protocol for management of native FGR 3.3.1. Project annual reports and publications documenting technical assistance, mentoring, and other forms of capacity building. 3.3.2. Report on the adaptive performance of forest reproductive material (FRM) of different priority species in Cameroon. The report will document for the project and its partners, the percentage (%) of:	3.1 Female participants in capacity building activities are able to set aside time to attend and feel comfortable/encouraged to participate by both their families and the project. **Mitigation statement:** Through documentation and shared evidence on changes in income levels at the household level, both male and female household members will be incentivized to attend training. 3.2 MINFOF and the Forestry Department remain committed to the principle of utilizing native Cameroonian FGR for future landscape restoration initiatives. **Mitigation statement:** Local populations benefiting from restoration outcomes are always committed to the use of native tree species 3.3 MINFOF and the Forestry Department demonstrate their commitment by sourcing native FGR for restoration from within local seed centers and nurseries, switching

		• germination of seeds collected and documented using SeedIT • survival in nurseries and during planting of seedlings produced	from imported exotic species to native, locally- adapted ones. **Mitigation statement:** NGOs, development agencies, community organisations active in restoration on the ground will also promote the use of native species and good seed sources
Output 4: Increase in livelihoods for smallholder tree farmers, local seed businesses, seed cooperatives, and community nurseries driven by increasing Government demand for, and largescale procurement of, bulk quantities of high quality, native tree species seed to fulfil urgent national restoration commitments.	4.1 By month 6, the native tree species germplasm value chain (e.g. collectors, processors and storers, nursery managers, distributors, final users etc.) has been mapped, stakeholders involved, and their capacity to meet supply demands and potential opportunities in targeted regions assessed. 4.2. By Month 12, at least 1,000 stakeholders (forestry department, seed collectors, nursery managers, small FGR agri-businesses) use the SeedIT app verification of quality function to negotiate better prices for FGR along existing value chains. 4.3 By Month 12 Baseline data on household income generated from collection and propagation of native tree species 4.4 By Month 36 household income from collection and use of FGR's has increased by XY % (exact target to be defined after baseline report) 4.5. By Month 36, at least 10 new livelihood opportunities are opened up for stakeholders of native FGR	4.1 Report on existing native tree species germplasm value chain in project sites and their capacity to meet current and future demands for quality planting material 4.2 Database of local users of SeedIT app 4.3. Baseline survey report on current household income from native seed supply activities 4.4 Project report on new household income generated by native seed supply activities using the SeedIT app 4.5 Final impact evaluation.	4.1 Assumption: Demand for supply of seeds and delivery of multiple ecosystem services for restoration efforts continues to increase, creating an important pull effect on native tree seed supply at community level. 4.2 Assumption: Buyers along the value chain value native Cameroonian FGR and accept the verification methodology of the central database and SeedIT app as factors in price-setting. 4.3 Assumption: Local communities' members respond positively to the initiative and are actively engaged in various stages of the value chain (i.e. production, management, collection, processing). 4.4 Assumption: Supply of locally produced, healthy and natural foods or bio-organic products meet consumers demand in local markets.

	value chains (seed collectors, processors, nurseries etc.) in response to (a) primary pull: largescale restoration demand driven by the Government of Cameroon and (b) secondary, more downstream pull of market for NTFPs and timber from mature trees grown from native tree seed.		

Output 1.
1.1 Inaugural Project Workshop held with all partners and key stakeholders (including NGOS, development cooperation agencies, Ministry of Forest and Wildlife, Ministry of Environment, Ministry of Agriculture). Workplan communicated and refined
1.2 Project Steering Committee Meeting established
1.3 Baseline survey of the state of tree seed supply systems
1.4 Species prioritization with local communities and other stakeholders in projects sites and final selection of the 30+ priority native tree species for restoration
1.5 Validation workshop of findings of the baseline survey
1.6 Compilation of the detailed knowledge on the use (e.g.: food, fodder, medicine, spice, timber, fuelwood, conservation, etc.), value (nutritional, economic, cultural etc.) of the 30+ priority tree species
1.7 Elaboration of the provenancing strategy and sources of propagules for each priority tree species

Output 2
2.1 Refine, test and adapt the SeedIT mobile app for field trial in Cameroon
2.2. Elaboration of training manuals adapted to local contexts
2.3 Seed collectors, nursery workers, and forestry department managers have started using the SeedIT app to record data about tree seeds collected in project sites
2.4 Build capacities of 1000 new stakeholders to use the SeedIT mobile app to record and track seed quality
2.5 Elaboration of guidelines for future scaling out

Output 3
3.1 Stakeholders (forestry department, seed collectors, community nurseries, small FGR agri-businesses) use recommendations from the provenancing strategy to restore new sites
3.2 Nursery managers, managers of seed collections, seed centers, and forestry department personnel have improved their capacity to manage increased planting and survival of priority species via (i) technical assistance and mentoring from the project and (ii) a written protocol for management of native FGR.

Output 4
4.1 Mapping of the native tree seed suppliers and their capacities

4.2 Stakeholders (forestry department, seed collectors, nursery managers, small FGR agri-businesses, community nurseries) use the SeedIT app's verification of quality function to negotiate better prices for FGR along existing value chains. 4.3 New livelihood options for community-based nurseries involving native FGR have been explored, tested, or begun. 4.4 Baseline socio-economic study carried out in Year 1 and repeated in Year 3 to understand the impact of production and of good quality seedlings of native species on different stakeholders, including an analysis of the forward and backward economic multipliers within the specific value chain. The study will include an assessment of the economic returns for the various actors within specific value chains.

Table 1 Project Standard Indicators

DI Indicator number	Name of indicator	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
DI-A01	At least 1,000 seed collectors (of which 50 % are female) use the SeedIT app to document, value, and verify the quality of the seeds they collect by month 36.	Number of seed collectors (of which 50 % are female) trained to use the SeedIT app to document, value, and verify the quality of the seeds they collect	People	Gender	60 men 40 women	652 men 430 women		652 men 430 women
DI-A01	By Month 36, at least 200 nursery managers, managers of seed collections, seed centers, and forestry department personnel have improved their capacity to manage increased planting and survival of priority species via (i) technical assistance and mentoring from the project and (ii) a written protocol for management of native FGR.	Number of nursery managers or seed centres, managers of seed collections and seed centres trained to manage, document and monitor seeds and seedlings	People	None	25	140		175
DI-A07	By Month 36, the Ministry of Forest and Wildlife (MINFOF) has access to, and uses, data on the genetic diversity, quality, and performance of native priority tree species to guide national and regional-level landscape restoration initiatives, from policy to budgeting and public procurement.	Number of government institutions with access to data on the genetic diversity, quality, and	Number		3	10		10

DI Indicator number	Name of indicator	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
		performance of native priority tree species to guide national and regional-level landscape restoration initiatives						
DI-B02	Provenancing strategy and sources of seeds for each priority tree species identified by month 12	Number of native tree species in the diversity for restoration tool	Number	None	276			76
DI-B05	By Month 12 Baseline data on household income generated from collection and propagation of native tree species	Number of people engaged to prioritise native species for restoration	Number	Household /	411			411
DI-C01	SeedIT mobile app tested, adapted, and ready for field trial in Cameroon by month 6.	Number of digital applications developed to manage seed along the supply chain	Number	None		3		3
DI-C14		Number of persons attending stakeholders meeting	Number	Gender	30 men 20 women	40 men 30 women		

DI Indicator number	Name of indicator	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
DI-C19		Number of students trained at MSc level	Number	Gender	1 man 1 woman	2 women		4

Table 2 Publications

Title	Type (e.g. journals, best practice manual, blog post, online videos, podcasts, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)
How Well Established Are the Current Capacities of Native Tree Seed Systems? An Analysis of Four African Countries	Journal	Fiona L. Giacomini, John A. Prempeh, Riina Jalonen, Barbara Vinceti, Marius Ekue, Ennia Bosshard, David F. R. P. Burslem and Chris J. Kettle, 2023	Female	Swiss	Diversity, Basel, Switzerland	https://www.mdpi.com/1424-2818/15/9/981
PERCEPTION DES PETITS EXPLOITANTS ET DES PEPINIERISTES SUR LES CRITERES DE CHOIX DES SEMENCES DES ESPECES D'ARBRES NATIVES PRIORITAIRES POUR LA RESTAURATION DES PAYSAGES DEGRADES DANS LA COMMUNE DE	MSc thesis	Stephanie ELONO, 2023	Female	Camerounian		

Title	Type (e.g. journals, best practice manual, blog post, online videos, podcasts, CDs)	Detail (authors, year)	Gender of Lead Author	Nationality of Lead Author	Publishers (name, city)	Available from (e.g. weblink or publisher if not available online)
MBALMAYO: CAS D'AKOM NYADA II						
PERCEPTION DES PETITS EXPLOITANTS ET DES PEPINIERISTES SUR LES CRITERES DE CHOIX DES SEMENCES DES ESPECES D'ARBRES NATIVES PRIORITAIRES POUR LA RESTAURATION DES PAYSAGES DEGRADES A L´ÓUEST DU CAMEROON	BSc thesis		Moselyne Lallande EFFILA AMOUGOU	Camerounian		

Checklist for submission

	Check
Different reporting templates have different questions, and it is important you use the correct one. Have you checked you have used the **correct template** (checking fund, type of report (i.e. Annual or Final), and year) and **deleted the blue guidance text** before submission?	
Is the report less than 10MB? If so, please email to BCF-Reports@niras.com putting the project number in the Subject line.	
Is your report more than 10MB? If so, please discuss with BCF-Reports@niras.com about the best way to deliver the report, putting the project number in the Subject line.	
Have you included means of verification? You should not submit every project document, but the main outputs and a selection of the others would strengthen the report.	
If you are submitting photos for publicity purposes, do these meet the outlined requirements (see Section 16)?	
Have you involved your partners in preparation of the report and named the main contributors	
Have you completed the Project Expenditure table fully?	
Do not include claim forms or other communications with this report.	