Darwin Initiative Main: Annual Report

To be completed with reference to the "Project Reporting Information Note": (https://www.darwininitiative.org.uk/resources-for-projects/information-notes-learning-notes-briefing-papers-and-reviews/).

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

Submission Deadline: 30th April 2023

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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 2022 – Mar 2023) and number (e.g. Annual Report 1, 2, 3)	April 2022 to March 2023 Annual Report FY1 (July, 2021- March, 31 2022) and half Year report FY2 (April 1, 2022 to October 31, 2022)
Project Leader name	EKUE Marius Rodrigue Mensah
Project website/blog/social media	-
Report author(s) and date	Marius Ekue, Junior Nloga, Stephanie Elono, Moselyne Effila Amougou, Laure Fabo, Carine Alima, Jean Paul Nguiamba, Clément Solfane, David Gerard Madem, Ebenezer Assah, Hermann Taedoumg, Christopher Kettle

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).

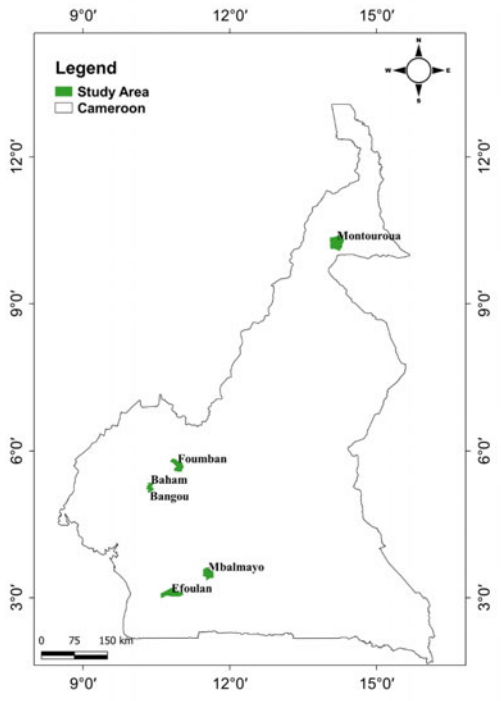

Figure 1: Project sites in Cameroon

[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 and Dschang.

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.

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.

The University of Aberdeen and the University of Yaounde have contributed in designing surveys, contributing to the methodology used to collect data and have been involved in the training of 4 MSc students and 1 PhD student already.

3. Project progress

Detailed of what activities have been completed, are delayed or ongoing are listed in the logframe table Annex 1 and in the narrative below.

3.1 Progress in carrying out project Activities

Progress in implementing 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 1.2. Project Steering Committee Meeting established

A joint physical workshop was organised between the PSC and the project implementing partners on 27 February 2023. The objective was to discuss progress in the implementation of the project after one year and plan the next steps (Annex 4).

Activity 1.3. Baseline survey of the state of tree seed supply systems

The seed system in Cameroun was characterised through 16 indicators grouped into 5 categories: selection and innovation; seed harvesting and production; market access, supply and demand; quality control and enabling environment (Table 1).

Table 1: Indicator used to evaluate the tree seed system in Cameroon

Macro-indicator	N°	Indicators	Summary name

Selection and innovation	**1**	Different sources of information are used to identify native species useful for restoration in a variety of ecosystems	Sources of information
	2	Research into the effect of climate change on native species across different ecosystems is used to inform selection of species and seed sourcing for restoration	Climate change-related research
	3	Information on species genetic diversity is used to identify goal-oriented planting material	Genetic diversity information
	4	Suitable information is readily available to inform stakeholders in their restoration choices	Information available to stakeholders
Seed harvesting and production	**5**	Seed sources that cover the geographical range of the priority native species have been identified and are protected effectively	Identified seed sources
	6	Improved material is available for those priority species used in restoration for productive purposes	Improved material availability
	7	Nurseries are able to produce the priority species adapted to each ecosystem	Nurseries' adapted species
Market access, supply and demand	**8**	There is demand for priority native species of suitable provenance for restoration across targeted ecosystems	Demand
	9	There is a network of suppliers able to meet the demand for priority native species of suitable provenance across targeted ecosystems	Network of suppliers
Quality control	**10**	Measures exist to comply with seed sourcing and harvesting standards	Seed sourcing & harvesting measures
	11	Measures exist to comply with seed quality standards	Seed quality measures
	12	Quality control measures function as an integrated system	Measures as an integrated system
Enabling environment	**13**	The seed system is underpinned by appropriate legislation and regulations applied to native species and implemented	Legislations & regulations
	14	There is appropriate capacity to support a seed system	Capacity building
	15	There is sufficient financial support for key research needed for seed systems	Financial support
	16	Local community members are involved in different stages of seed systems	Local community members involvement

Overall, the seed system is medium for the macro-indicator selection and innovation; and week or very week for the remaining 4 macro-indicators (Figure 2 and Table 2).

Selection and innovation

Expert interviews demonstrated that a list of priority native species including several threatened native species exists. However, it is apparent that these priority species lists are based on their

contribution to local livelihoods or conservation status, but that there is no specific official national published list of plant species for restoration purposes. Survey results show that there is some research on the effect of climate change on priority native species. When it comes to provenance trials, half of the respondents are not aware if those trials exist or not. A stakeholder emphasised that ANAFOR (National Forest Development Agency) has some. However, results indicate that research on the genetic diversity of species is not very prominent in Cameroon. The National Strategic Framework about Restoration of degraded Forests and Landscapes refers to the need of research on FLR.

Seed harvesting and production

Results show that seed sources tend to be identified for some priority species across some key ecosystems. However, most surveyed actors outlined that the sources are not protected. Through the 1994 Forestry Law, the Permanent Forest Estate (PFE) and the Non-Permanent Forest Estate (NPFE) came into force. PFE areas are permanently allocated to forest and/or wildlife habitat, that means that those forests are protected, while NPFEs can be used for non-forest purposes. Therefore, if a natural seed source is located in a NPFE area, the source is not protected. Further, PFEs can be converted to NPFEs through public interest. Results indicate that priority native species are being produced across key ecosystems, but that availability of improved material is mainly lacking. The perception of this lack comes mainly from public respondents. Respondents from the non-public sector outlined that there exists some improved material.

Market access, supply and demand

Demand for priority native species was indicated to be rather high by the respondents. Most of the surveyed actors also notice a demand for suitable provenance, but tendency of the results shows that this demand is assessed as somewhat lower especially by public sector actors. Either way, respondents agreed that the demand is not met successfully with no adequate provenance information. Many respondents do not know of a network of seed supplier. All surveyed actors agreed that there is neither a national nor a regional network. In theory, the National Strategic Framework presents a strategic governance (operating at a national and inter-national level) and an operational governance (operating at a regional and landscape level) which should help to effectively implement FLR practices. If these strategic and operational governances will be successfully implemented, they will facilitate the establishment of a sustaining seed supply network across the different levels.

Quality control

Cameroon has no national seed certification system in place for native tree species. The vast majority of the respondents, from both the public and non-public sector, replied that they do not know about a certification system. This lack of knowledge can be explained by its inexistence. The lack of quality seed was already raised as an issue in the international workshop for reflection and exchange held at the Technical Centre of the Communal Forest (CTFC 2011).

Enabling environment

Surveyed actors indicated that there are policies which include native tree species as well. Nevertheless, many respondents are also not aware of those policies. The 1994 Forest Law and the Law on Environmental Management of 1996 defined a political and strategic framework for FLR. However, there Forest Law was criticised for its poor formulation process and its weak execution (Essama-Nssah & Gockowski, 2000). Therefore, just having a law does not mean that it is successfully implemented. Interviewed experts emphasised that there is a major lack in capacity building and in financial support. In the international workshop of 2011, an identified weakness was the mismanagement of funds for planting activities and the lack of a mechanism to monitor the financial management of funds. In the National Strategic Framework of 2020, it is stated that the Ministry of the Environment, Protection of Nature and Sustainable Development

(MINEPDED) can catalyse the mobilisation of funds for FLR projects. It is not clear, though, how well the funding is already applied and if it also targets other actors in the seed supply chain than the FLR project managers. Half of the respondents do not know if local community members are involved in the different areas of the seed supply chain. The other surveyed stakeholder stated that there is some involvement – the public sector perceiving the involvement to be higher than the non-public sector –, expect in the elaboration of policies where all actors agree on the lack of involvement. In fact, in the reform process of the Forest Law 1994, local communities were left out, even if it were a stated goal to involve them in the management of forest resources (Essama-Nssah & Gockowski, 2000). However, one of the five guidelines of the National Strategic Framework of 2020 is the capacity building of local communities. With their governance system, they try to involve local communities in the FLR practices. They now have the chance to do it better.

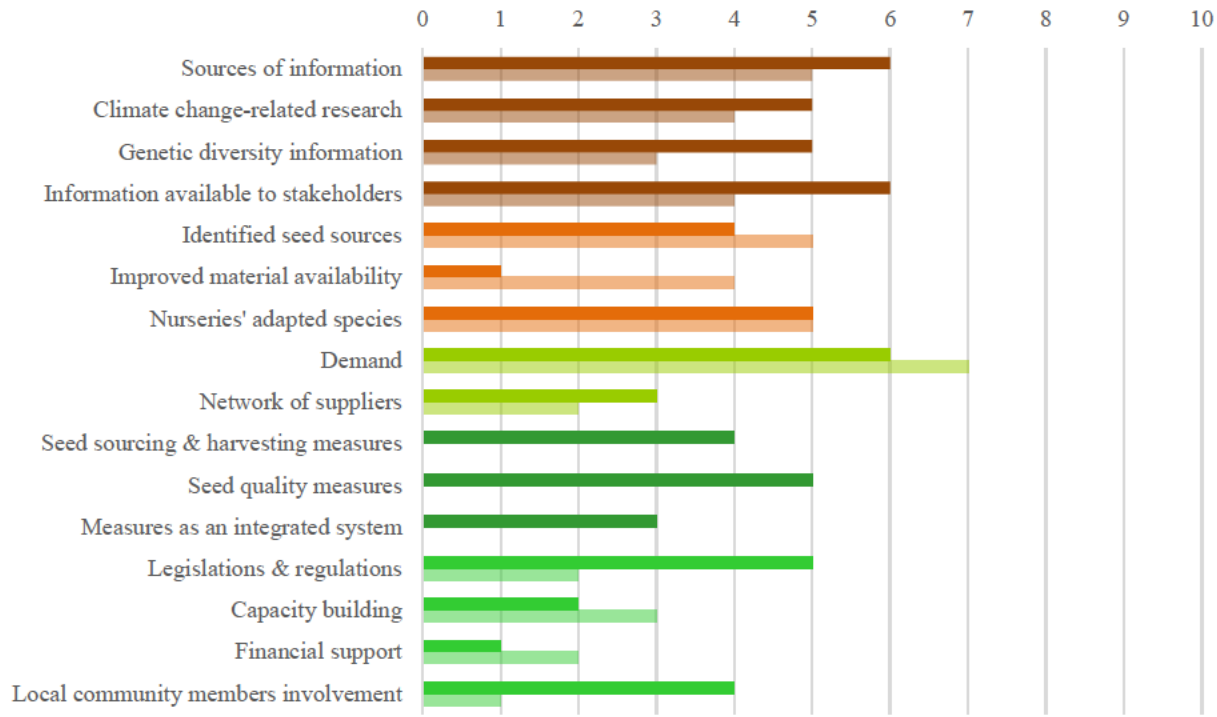

Figure 2: Scoring for a fit-for-purpose tree seed supply system in Cameroon. A value of 10 indicates that all aspects of the indicator are covered whereas a value of 0 indicates that this aspect is not currently existent.

Table 2: Strength of the existing capacities in the five macro indicators. Assessment of the existing capacities of the native tree seed supply based on the analysis of the responses. Capacities can range from very weak, meaning that capacities in this area are not existent, to very high, meaning that the current capacities cover all aspects.

Macro indicator	Strength of Cameroon
Selection and innovation	medium
Seed harvesting and production	weak
Market access, supply and demand	weak
Quality control	very weak
Enabling environment	very weak

Activity 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

A summary compilation of general literature and expert knowledge on each of the 76 priority species according to their uses, economic importance, habitat, conservation status was presented in the first annual report. But we know that some main reasons why native tree species are not promoted in landscapes restoration activities are partly due the lack of documented knowledge about their uses and values for the local communities. To fill this gap, we have also documented the local indigenous knowledge of tree species planted in cocoa (a major cash crop responsible for deforestation) landscapes.

Data were collected through inventory conducted in 60 cacao farms within 120 plots (2 plots of 2500 m² = 50 m x 50m separated by 50 m from each other) in the districts of Ayos and Bokito in Cameroon. Ayos has a semi-deciduous forest (SDF) while Bokito is a forest-savannah ecotone (FSE) where cocoa is also produced.

After the cocoa farm inventory, a questionnaire was administered to the owner on each farm directly in the field to collect local ecological knowledge on the interactions between cocoa and shade-tree species inventoried in their farms and the surrounding landscape.

Cocoa farmers were asked to rank the best and worst shade tree species in the cacao farms for the following agroecological criteria: shade, drought resistance, flood resistance, weed control, leaf decomposition, effect on soil fertility, competition with cacao for water and nutrients, branches falling and damaging cacao, bird attraction, bee attraction, effect on cacao pest and diseases and effect on cacao production.

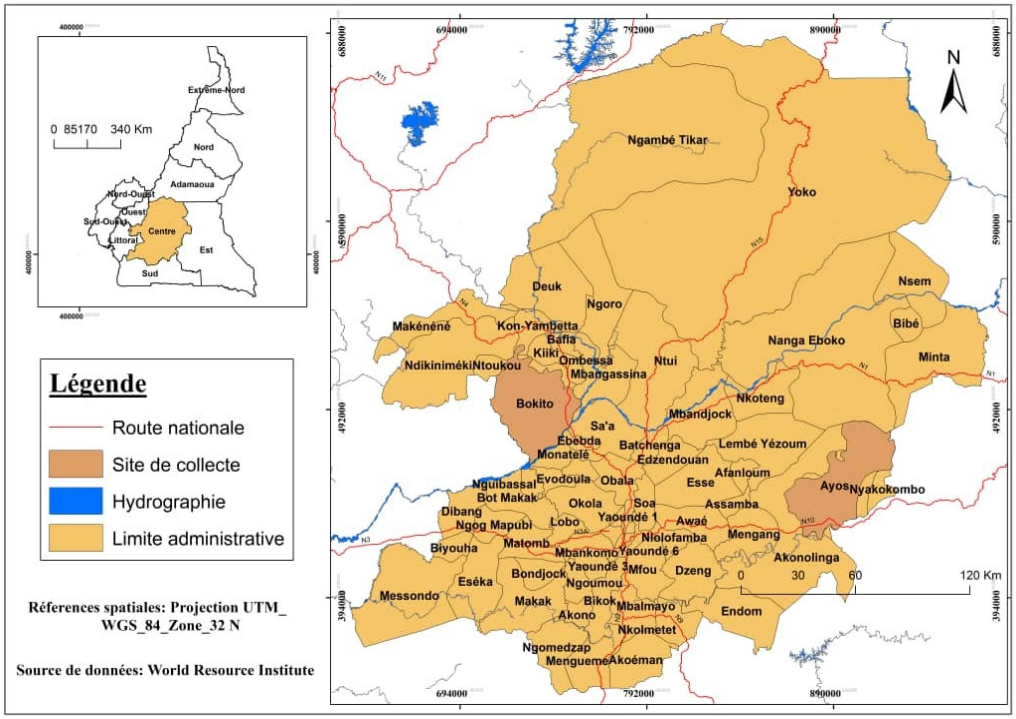

Figure 3: Sampling location to collect agroecological knowledge of tree species planted in cocoa production landscape

In total 162 species belonging to 105 genus and 39 botanical families were inventoried in the field (figure 4).

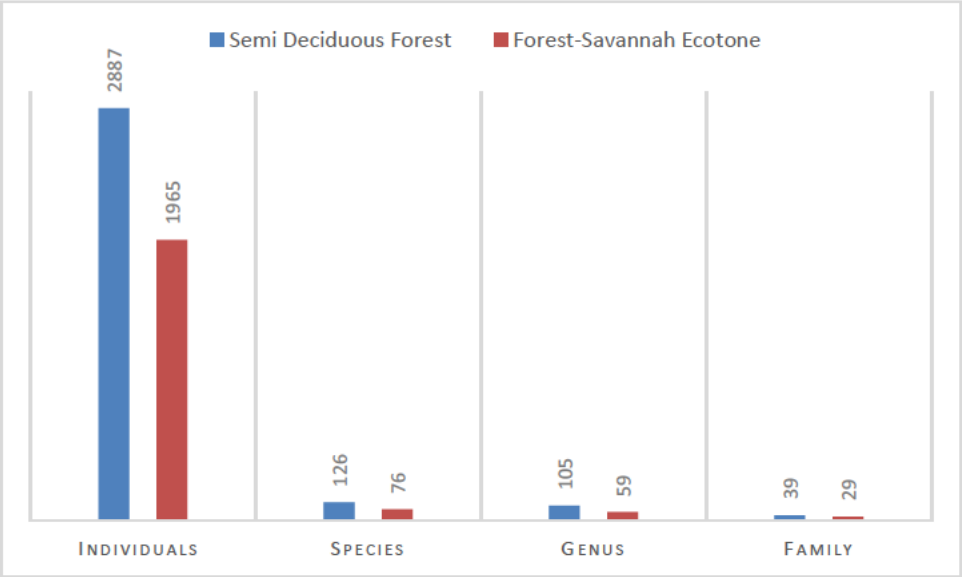

Figure 4: Number of individuals, species, genus and family sampled in cocoa landscape in Central Cameroon

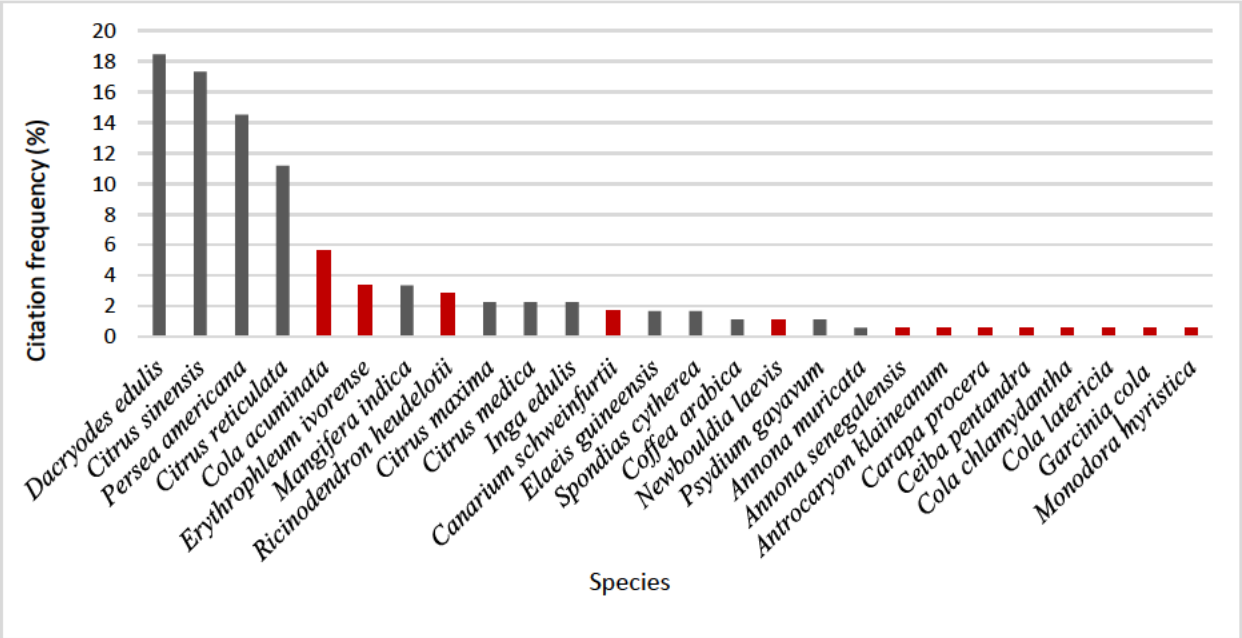

Figure 5: Important native species in cocoa agroforestry systems in Central Cameroon

Overall, the best shade tree species preferred by farmers are *Ceiba pentandra, Ficus mucoso, Terminalia superba, Milicia excelsa, Ricinodendron heudelotii, Inga edulis* in Ayos and *Ceiba pentandra, Milicia excelsa, Erytrophleum ivorense, Dacryodes edulis* in Bokito.

The best tree species for cocoa pollination were *Petersianthus macrocarpus* (22%), *Syzygium rowlandii* (12.5%), *Ceiba pentandra* (29.5%), *Elaeis guineensis* (4%). For drought resistance, the best species mentioned are *Ceiba pentandra* at 17% followed by *Milicia excelsa* (12%) and *Baillonella toxisperma* (7%) *Erytrophleum ivorense*

species having negative impact on cacao mentioned were *Musanga cecropioides*, *Mangifera indica*, *Myrianthus arboreus, Carapa procera* because they bring a lot of moisture under their leaves, *Musanga cecropioides, Funtumia elastica, Triplochiton scleroxylon, Pycnanthus angolensis, Albizia zygia* because of the yield reduction of cocoa.

Details of the specific interactions between the tree species inventoried and the agroecological criteria mentioned above are available in Annex 5.

That information will be used later (though not part of this project) to develop a sustainable cocoa agroforestry tool for Cameroon to guide the selection of suitable tree species and seed sources to diversity cocoa landscape.

Activity 2.1 Refine, test and adapt the SeedIT mobile app for field trial in Cameroon

As stated in the previous annual report, the original SeedIT app has been integrated into the Alliance Bioversity-CIAT webplaftorm called GeoFarmer (https://home.geofarmer.org/). It was field tested with national partners in September 2022.

Results from the field testing and the evaluation of the seed system (Activity 1.3.) and further engagements with key stakeholders of the Government of Cameroon (Ministry of Forestry and Wildlife, Ministry of Environment, Protection of Nature and Sustainable Development), dealing with seed issues revealed the need to modify the SeedIT app to ensure its transferability and longer term sustainability and to enhance useability to a to target different stakeholders from the seed supply chain namely: seed collectors, nurseries managers, farmers, national seed centers etc.) to meet their specific need.

What we have now is a more user friendly and adaptable platform MyGeoTree and MyGeoFarm. These were presented officially in Cameroon at a workshop held on 28 march 2023 (Annex 6).

The new apphas modules on: 1) seed collection and documentation; 2) nursery management and registration of seedlings; 3) tree planting on farms and managements; 4) monitoring of performance of seedlings and verification). The apps are linked to each other and would allow monitoring and evaluation along the tree supply chain.

Currently, MyGeoTree Collector (for seed collection and documentation), MyGeoTree Nursery (for management of seed in nursery and seedlings registration), MyGeoFarm (for on farms management of seedlings and natural regeneration) are available on Google Play https://play.google.com/store/search?q=mygeotree&c=apps.

Activity 2.2. Elaboration of training manuals adapted to local contexts

Practical trainings targeting seeds collectors and nurseries managers have started in the field using the two official languages of Cameroon (French and English) from 29 march. Theoretical and practical trainings are conducted using MyGeoTree Collector app and MyGeoTree Nursery apps designed and the presentation in annex 6. Production of training videos and materials is currently in process.

Trainings will be conducted throughout the country this year with all partners, and feedback will be integrated to produce training and extension manuals adapted for different users (seeds collectors, nurseries managers and seed centers, students) to scale the use of the apps.

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

Rainy seasons has started in Cameroon, and many trees would soon be producing seeds. We have also started trainings for the use of this apps and implementing our seed collection strategies as explained above. By the end of December 2023, we expect to have a great number of data recorded on the platform, with 500 Seed collectors 150 Nurseries and 500 farmers registered using the app.

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

We have already built the capacity of 200 stakeholders to use MyGeoTree Collector and MyGeoTree Nursery apps in the month of April 2023 alone. The 1000 stakeholders have already been identified across Cameroon, and would all be fully trained gradually next year together with our partners.

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

During the first year of the project, we were able to develop and released online the **Diversity for Restoration Tool (D4R -** https://www.diversityforrestoration.org/) for Cameroon. D4R is a user-friendly online tool that is designed to assist decision makers and restoration practitioners with the **selection of tree species** and **seed sources** that are adapted to the restoration site conditions and meet the restoration objectives. Depending on the planting site location, restoration site conditions and restoration objectives), the user receives recommendations on combinations of species to plant, where to get the seeds, and how to propagate the species.

The tool integrates (i) species habitat suitability maps under current and future climatic conditions; (ii) analysis of functional trait data, local ecological knowledge, and other relevant species characteristics, such as species threat status, to score how well species match the site conditions and restoration objectives; (iii) optimization of functional trait diversity or phylogenetic diversity to foster complementarity effects; and (iv) development of seed zone maps to guide the sourcing of planting material adapted to present and expected future environmental conditions.

D4R for Cameroon has data on 230 native tree species including 76 species prioritised in this project for seed collection. National partners and different restoration practitioners' stakeholders investing and doing landscape restoration are fully aware of the tools and interested in using it.

For the remaining time of the duration of this project, seedlings to be produced from seeds collected in this project will be matched to planting location using recommendation from the D4R tool.

We are monitoring the use of the tool by other stakeholders and would assess its use during the last year of the project.

Activity 4.1 Mapping of the native tree seed suppliers and their capacities

A total of 25 nurseries were surveyed in 6 districts to assess their capacity to produce germplasm from native species. detailed analysis of the data collected in still ongoing and will be shared in the next report.

Most nurseries managers (69%) have received some formal training (either before or later) to set up and run their nurseries appropriately. But 25% have never received any formal training (Figure 5).

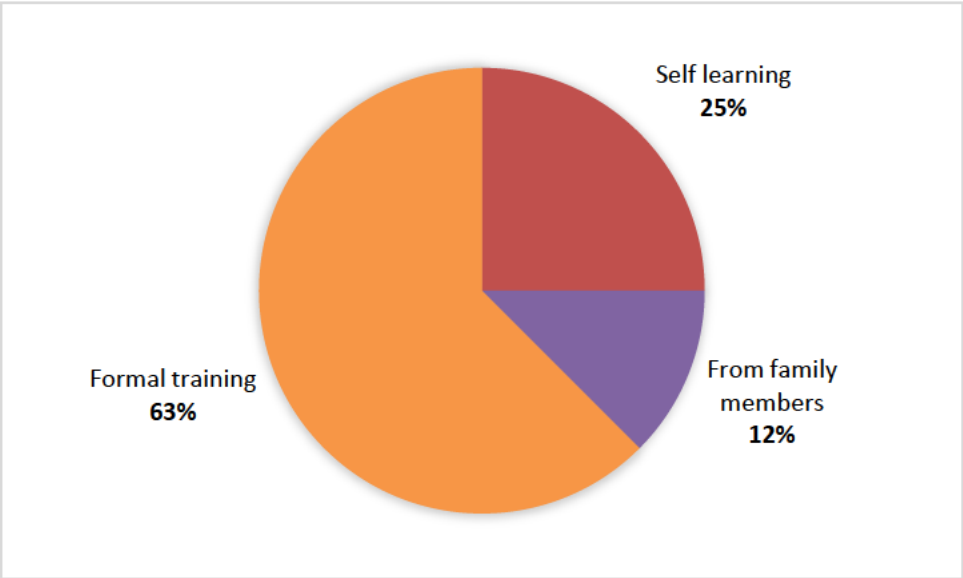

Figure 6: Origin of the technical knowledge of nurseries managers

A total of 43 species were produced in the nurseries surveyed. Among them, 27 are present in at least 2 nurseries (Figure 6). Over 65% of the 43 species are native species comprising also 20 species prioritised for the Darwin Initiative project.

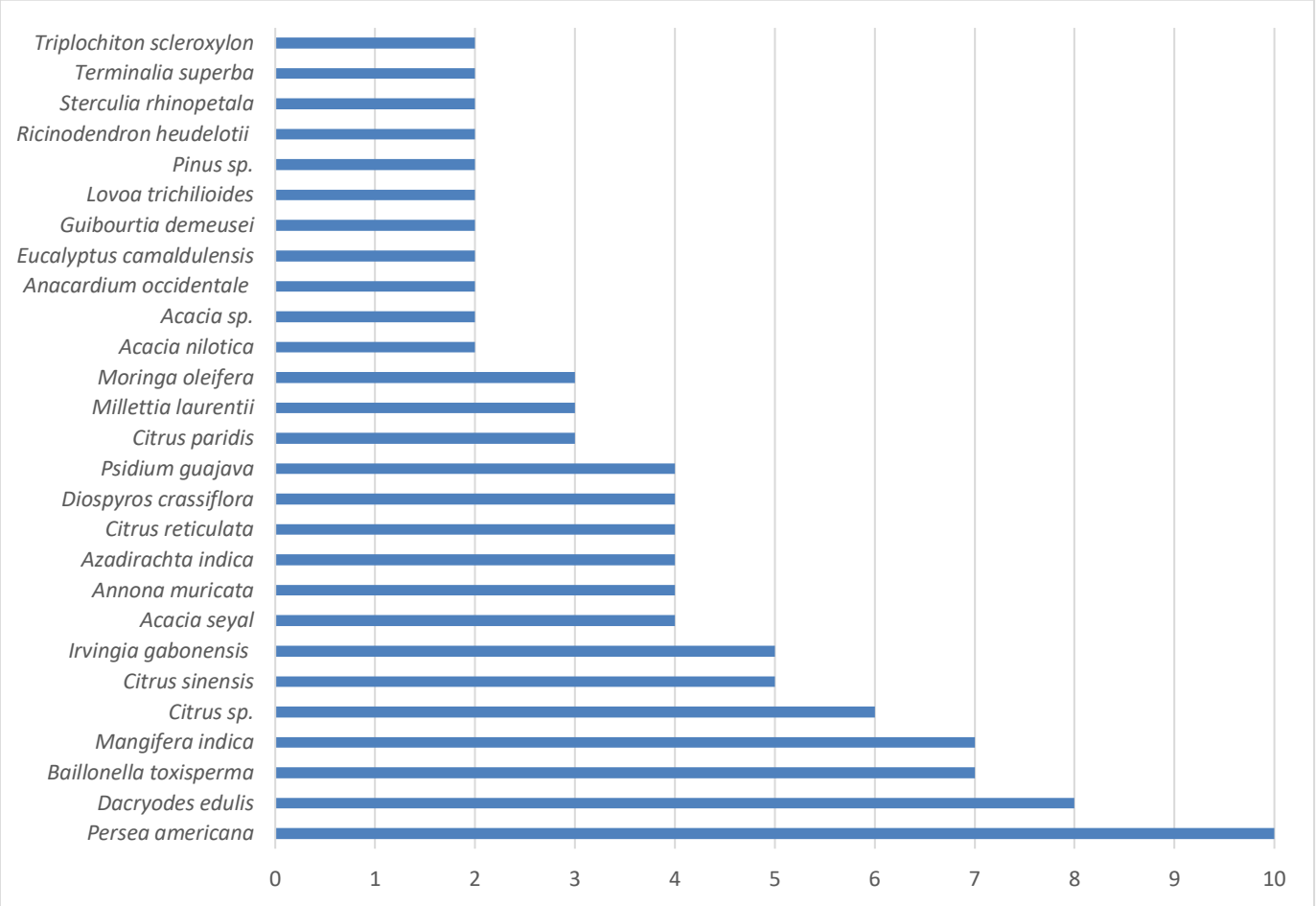

Figure 7: number of species present in at least 2 nurseries

Seeds used to produce seedlings in the nurseries were predominantly collected directly by nurseries managers or purchased from local markets (mostly for fruits species) (Table 3).

Table 3: Provenance of seeds used in nurseries in Cameroon

Seed provenance	Percentage of respondents
Own collection	86,67
Market	46,67
Seed centers	30
Seed collectors	30

Nurseries managers reported different challenges to get seeds in quality and quantify to produce seedlings. The most important issues are: that seed collection locations are too far away, the unavailability of enough mother trees, the lack of knowledge about seed physiology and conservation for some native species, and the lack of equipment and techniques to harvest seeds from difficulties to harvest seeds from tall trees (table 4).

Table 4: Challenges to get seeds

Problems encountered	Percentage of respondents

Seed collection sites too far away	17
Lack of enough mother trees	17
Lack of knowledge about seed physiology and conservation for some native species	17
Lack of equipment and techniques to collect seeds from tall trees	14
Seeds are expensive	7
Lack of quality seeds	7
Lack of knowledge about the phenology of native tree species	6
Competition with other seed collectors	3

90% of nurseries know nothing about existing rules and regulations any formalities (permits, certificates, authorizations, etc.) governing seed collection. This confirm finding from the evaluation of the tree seed supply systems.

Most seed collected are sown maximum 2 weeks after their collection to avoid them losing their viability. To conserve seed for up to three months, nurseries reported drying them on the sun before putting them in plastic bottle or treating them with insecticide or fungicide (figure 7)

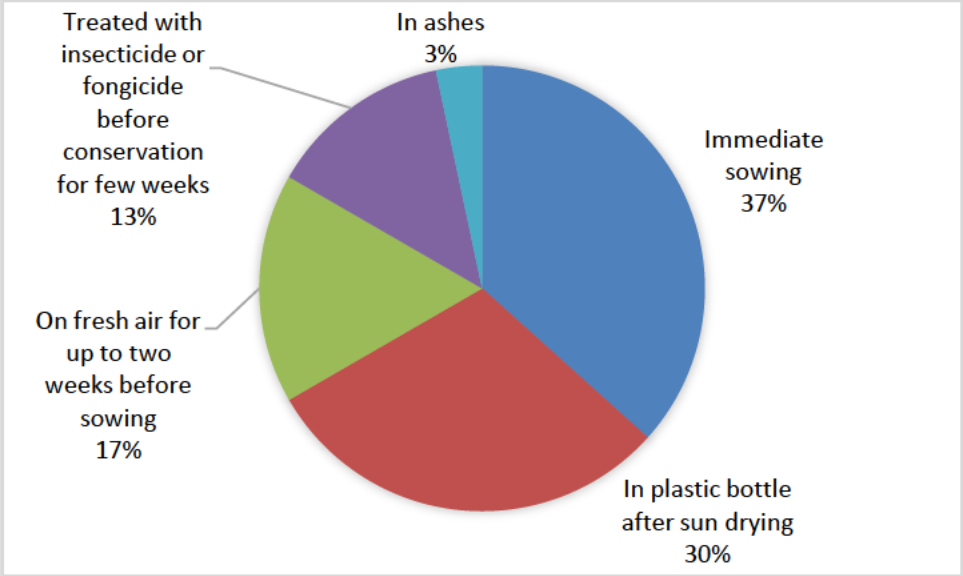

Figure 8: Seed conservation techniques

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.

Results of surveys run during species prioritisation at the community and household's levels (presented in annual report 1), the evaluation of the native tree seed system (weak in general and especially for the macro-indicator "market access, supply and demand") as well as the mapping of tree seed suppliers showed that while the demand for native tree species germplasms are not matched by the supply and the market is inexistant.

77% of the demands for seedlings of native species are at the individual's levels (mostly based in rural areas) and from NGOs (30%) or development organisations (e.g. GIZ) working in rural areas. Native species of interests for local population are usually those providing food (food & nutrition, spice, edible caterpillars' production), shade (for cacao and coffee), medicine and wood energy (table 5). The demand from government institutions (40%) are usually related to

timber species and not the species providing different products and ecosystem services desired by rural population.

According to nurseries managers, the demands for seedlings has increased over the last 10 years (figure 9).

Table 5: Origin of the demand of new seedlings

Stakeholders	Percentage of respondents
Individuals	77
Government institutions	40
NGOs	30
Resellers	27
Development organizations	23

According to nurseries managers, the demands of seedlings from native species (as well as the price) over the last 10 years are increasing (figure 8).

Over the next 12 months, in addition we will register systematically all seed collectors, nurseries and seed centers respectively with MyGeoTree Collector app and MyGeoTree Nursery app after training them. This will create a link between the supply and demands of native seeds to meet restoration targets of different stakeholders. It will also open new opportunities to trade seeds and seedlings of native species and bring new revenues to different stakeholders.

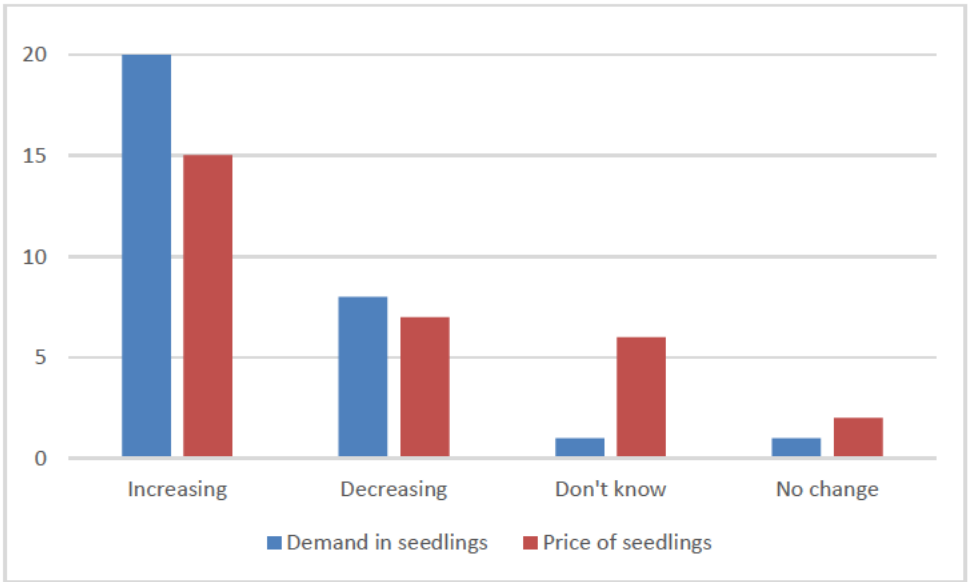

Figure 9: Perceived evolution of the demand of seedlings and their prices during the last 10 years

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. In addition to the sub outputs reported in October 2022, we have also implemented additional activities related to indicators 1.1, 1.4 and 1.6.

Indicator 1.1: The result of the baseline survey of the state of tree seed supply system is reported in section 3.2. of this report.

Indicator 1.2: The database and report of the priority 76 species identified with stakeholders is available the report submitted in October 2022.

Indicator 1.3: The baseline data were fully validated with stakeholders and documented in the annual report submitted in October 2022

Indicator 1.4: 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).

Indicator 1.5: 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).

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 made great progress with this output by integrating feedback received from engagement with different stakeholders involved in the native seed systems. Instead of one app, we have now three apps (MyGeoTree Collector, MyGeoTree Nursery, MyGeoFarm) targeting different stakeholders, more user-friendly with better functionalities.

Indicator 2.1. Completed. MyGeoTree Collector, MyGeoTree Nursery and MyGeoFarm are available on Google PlayStore.

Indicator 2.2. Partially completed. PPTs (Annex 5) and training videos on how to use the apps have been created. 2 training session organised in March 2023.

Indicator 2.3. 100 seed collectors and 25 nurseries were already trained and would start recording data on tree seeds during the next fruit production season starting in April 2023

Indicator 2.4. The National guidelines for future scaling out will be drafted from October 2023.

Indicator 2.5. We have already identified the 1,000 stakeholders to be trained to monitor and track seed quality and seedling performance. Now that we have the Apps developed, the capacity building will be performed from April 2023.

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

We are making good progress in delivering this output.

Indicator 3.1. In 2022, the D4R has been completed and released online. We have trained already 100 partners on how to use it. We have already identified stakeholders to train for the use of the strategy and will organise regional workshops this year.

Indicator 3.2: Ongoing due in Year 3. We have already inventoried some keys stakeholders (nursery managers, managers of seed collections, seed centers, and forestry) concerned and have started training them.

Indicator 3.3: Due to start in April 2023 with seed collection with the apps and monitoring of performance in nurseries.

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.

Some indicators have been achieved and other are ongoing and will be fully achieved during the remainder of Year 2.

Indicator 4.1: Completed.

Indicator 4.2: Has started and will be completed in December 2023. The Apps are available, trainings are being conducted as well as seed collection using them.

Indicator 4.3 Achieved.

Indicator 4.4 Due in Year 3. Baseline assessment to determine current income from native germplasm will be done in 2023

Indicator 4.5. Due in Year 3.

3.3 Progress towards the project Outcome

The project is on track to fully achieve its outcome 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 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.

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.

Related to indicator 2, we have identified stakeholders involved in seed collection and have started training them for the use of the SeedIT (MyGeoTree) app in 2023. We are also mapping existing nurseries and other seed centers and will start targeted capacity building and awareness of 76 priority trees targeted in 2023 (indicator 3).

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

This outcome will be achieved. We have already identified the 200 nurseries/seed centers to be trained and training started April 2023.

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 privates nurseries are interested in being train and using our tools to guaranty 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.

5. Project support to 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-baed non-timber and timber products in the long-term, which will enhance resilience of these communities to financial shocks.

Achievements will be reported next year.

6. Gender equality and social inclusion

The Project is working hard to ensure gender balance and especially female empowerment in the seed sector, and nursery industry. For all baselines data collected through questionnaire, we have organised focus groups discussion in each village with men and women separately. As a result, 72% (55 out of 76) of the priority species were important for women of Cameroon as evidenced in Annex 7 of the first annual report.

We are also training women for the use of the MyGeoTree apps and would report on that next year.

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: 0% LaboSyst: 1 man (50%) 1 woman (50%) University of Aberdeen: 0%

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

[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.

- 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.

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 2023 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.

11. Other comments on progress not covered elsewhere

Nothing additional to report.

12. 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. More evidence will be provided next year in our annual report.

13. 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.

14. Safeguarding

Has your Safeguarding Policy been updated in the past 12 months?		Yes/No
Have any concerns been investigated 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.		

15. Project expenditure

Table 1: Project expenditure <u>during the reporting period</u> (1 April 2022 – 31 March 2023)

Project spend (indicative) since last Annual Report	**2022/23 Grant (£)**	**2022/23 Total Darwin Costs (£)**	**Variance %**	**Comments (please explain significant variances)**
Staff costs (see below)				
Consultancy costs				The cost of the consultant's laptop was slightly more than what was anticipated, and it was needed for them to be able to carry out the work.
Overhead Costs				
Travel and subsistence				
Operating Costs				More of operational costs were incurred in the period.
Capital items (see below)				This purchase was not anticipated to take place in this phase

Monitoring & Evaluation (M&E)				
Others (see below)	[redacted]			We incurred less research and services support than what we had anticipated in this annual year.
TOTAL	**84,800**	**84,658.21**	**(141.79)**	

Table 2: Project mobilising of matched funding during the reporting period (1 April 2022 – 31 March 2023)

	Matched funding secured to date	Total matched funding expected by end of project
Matched funding leveraged by the partners to deliver the project.		
Total additional finance mobilised by new activities building on evidence, best practices and project (£)		

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

Annex 1: Report of progress and achievements against logframe for Financial Year 2022-2023

Project summary	SMART Indicators	Progress and Achievements April 2022 - March 2023	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.		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 priority tree species that could deliver multiple livelihood and environment benefits is a great achievement for their future valorisation and promotion in tree planting. The development and release of 3 apps MyGeoTree Collector, MyGeoTree Nursery and MyGeoFarm responding to specific needs of the stakeholders engaged by the project is a great achievement. Their use would strengthen the tree seed system and create new livelihoods avenue for native tree species that would benefits rural populations.	[redacted]
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.	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.	In 2022-2023, MINFOF, the National Agricultural Research Institute (IRAD), the University of Yaounde 1 and the National Herbarium have all contributed and provide raw data on native species useful to develop the D4R tool and are mentioned as partner on the D4R website https://www.diversityforrestoration.org/partners.php.	Monitor the use of the D4R tool by stakeholders implementing restoration in from with project partners.

		MINFOF represented by the Director of Forests MINFOF (the Chair of the Project Steering Committee) is committed to ensure that the provenancing strategy elaborated will be used in future government restoration project integrating the priority species which are also for interest for them.	
	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.	In 2022-2023, 100 seed collectors (of which 40 women) were trained to use MyGeoTree apps. We have also identified all potential remaining seed collectors to train from May 2023 and have elaborated a strategy for seed collection for the priority species (Annex 5).	We will train remaining seeds collectors identified across the whole countries to use MyGeoTree Collector app
	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.	In 2022-2023, 2 national seed centers and 23 nurseries were trained for the use of MyGeoTree Nursery app. We have identified with our partners and sensitised nurseries that will be trained from May 2023 in line with the seed collection strategy of the project (Annex 5).	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 in Annex 9 of the previous annual report	Nothing else is required

proven to yield significant livelihood, productivity, and environmental benefits compared to exotic tree species	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
Activity 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		Completed. Report of the kick-off workshop held on 18 February 2022 is available at Annex 4 of the annual report 2021-2022.	Nothing else is required
Activity 1.2. Project Steering Committee Meeting established		Established after the kick-off meeting in February 2022. On 28 March. The Project Steering Committee has a physical meeting in Yaounde on 27 February 2023.	The next meeting of the Project Steering Committee will be held in early 2024

Activity 1.3. Baseline survey of the state of tree seed supply systems		Results are presented in this report at section 3.2.	Nothing else is required, the activity has been fully implemented
Activity 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		Priority list of 76 native tree species identified by stakeholders and presented in Annex 9 of the previous annual report.	Nothing else is required, the activity has been fully implemented
Activity 1.5. Validation workshop of findings of the baseline survey		Completed and fully documented in the annual report 2021-2022.	Nothing else is required, the activity has been fully implemented
Activity 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		Detailed knowledge on the use, value of the 76 priority species are documented in annual report 2021-2023 and section 3.1. of this report	Nothing else is required, the activity has been fully implemented
Activity 1.7. Elaboration of the provenancing strategy and sources of propagules for each priority tree species		Completed. The D4R platform available online www.diversityforrestoration.org present the provenancing strategy for 276 species (including the 76 priority species for this project).	Nothing else is required, the activity has been fully implemented
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	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	PPTs (Annex 5) and training videos on how to use the apps have been created. 2 training session organised in March 2023.	Training manual will be developed with feedback from ongoing trainings of users of the apps
	Indicator 2.3. 1,000 seed collectors, nursery workers, and forestry department managers use the SeedIT app to log and record data	100 seed collectors and 25 nurseries were already trained and would start recording data on tree seeds during the next fruit	Number of users of the apps will be fully documented this year and report from October 2023

	about tree seeds they collect in project sites from month 12	production season starting in April 2023.	
	Indicator 2.4 National guidelines for future scaling out is published by month 12 and re-evaluated with stakeholders in month 24	Not completed due to delayed in developing and piloting the apps.	Will be drafted from October 2023
	Indicator 2.5 The capacity of 1,000 new stakeholders to monitor and track seed quality and seedling performance is built by month 30	Delayed because the app(s) were not available yet. However, we have already identified the 1,000 stakeholders to train	Trainings of the remaining seeds collectors and nurseries managers will be conducted this year
Activity 2.1. Refine, test and adapt the SeedIT mobile app for field trial in Cameroon		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, the activity has been fully implemented
Activity 2.2. Elaboration of training manuals adapted to local contexts		Elements of the training manuals (PPTs, videos, written manual) are in preparation	Develop the whole content of the training manuals with integrating feedback from users of the apps
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		100 seed collectors and 25 nurseries already trained are ready to use the app with the next fruiting season from April 2023	Continue to build capacity of new stakeholders (seeds collectors, nurseries managers, foresters etc.) and incentivise them to use the apps in 2023-2024.
Activity 2.4. Build capacities of 1000 new stakeholders to use the SeedIT mobile app to record and track seed quality		Delayed because the app(s) were not available until March 2023. We have already built the capacity of 100 seeds collectors. We have also identified the remaining 900 persons to train.	We will build capacities of 900 seed collectors to use the app this year
Activity 2.5. Elaboration of guidelines for future scaling out		Delayed.	The first guideline will be elaborated by October 2023.
Output 3. The capacity of key stakeholders to manage increased planting and	Indicator 3.1. By Month 12, at least 1,000 stakeholders (forestry department, seed collectors, nursery managers, small FGR agri-	In 2022, the D4R has been completed and released online. We	Recommendations from the provenancing strategy will be used for the 76 priority species from

survival of priority species in the future is enhanced	businesses) use recommendations from the provenancing strategy to restore new sites	have trained already 100 partners on how to use it. We have also already identified stakeholders to train for the use of the strategy	which seeds will be collected from April 2023. We will also keep promoting the use of D4R tool by other restoration projects in Cameroon at the regional level
	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.	In 2023, we have built the capacity of 23 nurseries and 2 seed centers.	In 2023-2024, we will train new stakeholders (nursery managers, managers of seed collections, seed centers, and forestry)
	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	This year, seeds collected and fully documented with the MyGeoTree Collector app will be tracked in nurseries, and their germination and survivals will be monitored and documented
Activity 3.1. Stakeholders (forestry department, seed collectors, community nurseries, small FGR agri-businesses) use recommendations from the provenancing strategy to restore new sites		In 2022-2023, the D4R was shared widely with all national stakeholders to be used in their future planning of tree plantings.	This year, we will use recommendations of the provenancing strategy for the 76 priority species for which seeds are being collected and documented from April 2023. We will also document any potential use of the D4R tool by other restoration projects in Cameroon
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.		In 2022-2023, we have identified across the country with our partners al potential nurseries and seed centers and invite some of them to attend workshops organised by the	This year, we will do a lot of trainings of stakeholders (e.g. seed collectors, nurseries managers, forestry personnel...) and monitor how they manage native FGR

		projects. Evidence is provided in Annexes on the previous and current annual report.	
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. 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
	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.	Incomplete due to delays in Apps development and delays in project start which impacted timing for seed collection with seasonality of seed ripening.	This year, a database of users of the Apps and prices of germplam (e.g. seeds and seedlings) along the supply chain would be documented for the priority species.
	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
	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)	Due in Year 3.	Nothing this year
	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	4.5 Due in Year 3	Nothing this year

	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.		
Activity 4.1. Mapping of the native tree seed suppliers and their capacities		Completed. Report on existing native tree species germplasm value chain in project sites and their capacity to meet demands of planting material is documented at section 3.2. of the current report	This year, we will map all nurseries being trained to use MyGeoTree apps and their capacities beyond the project implementation sites.
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.		Delayed	Will be documented from April 2023
Activity 4.3. New livelihood options for community-based nurseries involving native FGR have been explored, tested, or begun.		Due in Year 2	Will start from April 2023
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.		The baseline for Year 1 is completed and documented at section 3.2. of the current report.	Nothing else is required this year

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	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	quality, verification, and price paid for the seed collected. 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' cooperatives, NGOs, government)	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.

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.

Annex 3: Standard Indicators

Table 1 Project Standard Indicators

DI Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DI Standard Indicators	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		60 men 40 women	500 men 500 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			200
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 performance of native priority tree species to guide national and regional-level landscape restoration initiatives	Number		3	10		10	2
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	Number of people engaged to prioritise native species for restoration	Number	Household /	411			411	300

DI Indicator number	Name of indicator using original wording	Name of Indicator after adjusting wording to align with DI Standard Indicators	Units	Disaggregation	Year 1 Total	Year 2 Total	Year 3 Total	Total to date	Total planned during the project
	collection and propagation of native tree species								
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	1
DI-C14		Number of persons attending stakeholders meeting	Number	Gender	30 men 20 women	40 men 30 women			
DI-C19		Number of students trained at MSc level	Number	Gender	1 man 1 woman	2 women		4	3

Table 2 Publications

Title	Type (e.g. journals, manual, 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)
Diversité des arbres d'ombre et disponibilité des Produits Forestiers Non Ligneux dans les systèmes agroforestiers de la région du centre Cameroun	MSc thesis 1	Laure FABO	Female	Camerounian		
How Well Established Are the Current Capacities of Native Tree Seed Systems?	MSc thesis 2	Fiona Giacomini	Female	Swiss		

Title	Type (e.g. journals, manual, 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)
An Analysis of Four African Countries						

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?	
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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.	
Do you have hard copies of material you need to submit with the report? If so, please make this clear in the covering email and ensure all material is marked with the project number. However, we would expect that most material will now be electronic.	
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.	