TREPA
Transforming Eastern Province through Adaptation

Rwanda Forestry Authority

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Output 3.3: Enhancing tree seed and seedling supply to provide diverse and climate adapted species and varieties within the framework of TREPA 2022-2027

Training needs assessment report for tree seed supply, the *Transforming Eastern Province through Adaptation* project (TREPA), Rwanda

Final report

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Final report.

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This report is based on discussions and observations made between 18 November and 9 December 2023 in Rwanda, followed by online discussions until April 2024.

This report is a contribution to Component 3 of TREPA.

Some members of the training needs assessment team and the Rwandan Tree Seed Centre with members of a tree seed cooperative, Nyagatare District, Eastern Province, Rwanda

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Contents

Table of recommendations for skills development. Please read the full report to understand the basis for these recommendations. The first nine recommendations (Recommendations 1 to 9) are directed to the skills gaps and staff capacity needs of the Rwandan Tree Seed Centre and 'similar' partner institutions. The final four recommendations (Recommendations 10 to 13) are directed to the skills gaps of the 'seed' cooperatives who supply the Rwandan Tree Seed Centre with tree seed.

Recommendation	Details to Recommendation	Timeline	Responsibility for follow-up
Recommendation 1: Prioritise skills development on tree genetic improvement and genetic quality, and climate change adaptation.	We recommend that courses and mentorship programmes are undertaken on (1) implementing tree genetic improvement, genetic quality and selection approaches; and (2) specifically on how tree genetics and climate change interact for selecting tree species and provenances for planting. For skills development on (1), the training can build on relevant training already provided through TREPA to technical staff of the Tree Seed Centre and the Rwanda Forestry Authority. This training has included the course titled *Breeding Seed Orchards (BSOs) and Seed Source Descriptions (SSDs)* which was held in July 2023 (training report available). For further training, however, the training syllabus should be adjusted to take account of the specific findings of the current training needs assessment (see details in this report), the gaps and 'dislikes' identified in the July 2023 course by the course participants, and any relevant concepts of the 'diversity breeding' approach as laid out here: https://doi.org/10.17528/cifor/008758. The training should be as practical as possible. In support of this, the training should be linked with ongoing TREPA activities on countrywide tree seed collection and seed orchard establishment. For skills development on (2), the training should be based on the relevant steps for operationalising climate appropriate portfolios for tree diversity (CAPTD) (see https://doi.org/10.17528/cifor-icraf/008850). This training is more strategic in nature than the training on genetic improvement, and it does not require the same field work component.	We recommend the training on (1) be provided as soon as is practical in 2024. We recommend the training on (2) be undertaken in 2025 along with activities targeted to address Recommendation 3 that is concerned with online decision-support tools training and access (see below – this is because these online tools are part of operationalising CAPTD).	CIFOR-ICRAF to follow-up with the Tree Seed Centre.
Recommendation 2: Prioritise skills development on native tree species.	We recommend that courses/other training activities are undertaken that focus on the features of native tree species, including how to identify them, their seed properties, their propagation methods and their uses. The training can build on relevant training already provided through TREPA to technical staff of the Tree Seed Centre and the Rwanda Forestry Authority. This training has included the course titled *Priority species selection, seed sources,*	We recommend this training be provided as soon as is practical in 2024.	CIFOR-ICRAF to follow-up with the Tree Seed Centre.

Recommendation	Details to Recommendation	Timeline	Responsibility for follow-up
	seed procurement, nursery operation and field planting vs direct sowing which was held in August 2023 (training report available). For further training, however, the training syllabus should be adjusted to focus on specific native tree species that have been identified as priorities for planting in Rwanda through TREPA and other prioritisation exercises. The syllabus should also be adjusted to take account of the specific findings of the current training needs assessment (see details in this report). The training should be as practical as possible. In support of this, the training should be linked with countrywide native tree seed collection and seed orchard establishment. This training will be essential in support of the Tree Seed Centre placing greater emphasis in future on the provision of planting material of native tree species, an important issue for landscape restoration.		
Recommendation 3: Prioritise skills development in the use of online decision-support tools on tree seed supply, and on tree planting more broadly, and improve access to these tools.	We recommend training to improve skills in the use of existing online decision-support tools related to tree seed supply and to tree planting more broadly. Before this skills development work takes place, however, practical tutorials need to be completed in the use of some of the existing CIFOR-ICRAF-developed decision-support tools. This tutorial development work is currently ongoing. In addition, a specific 'What to Plant Where' (WTPW) tool to support tree planting in Rwanda is currently not yet completed, but this will also have a tutorial associated with it. Along with training in tool use, improvements are needed in access to them. This may be in signposting potential users to the tools, but could also include infrastructural improvements in terms of access to the internet. This point should be considered as part of the assessment of infrastructure capacity that is a separate activity within the ongoing capacity needs assessment of the tree seed and seedling sector in Rwanda, of which the current training needs assessment is part.	To allow the development of the tutorials needed for training, as well as the Rwandan WTPW tool, we suggest that training be scheduled for 2025.	CIFOR-ICRAF to follow-up with the Tree Seed Centre. Before full training is available, we recommend that support to the Tree Seed Centre in the use of specific CIFOR-ICRAF tools be provided by CIFOR-ICRAF on a case-by-case basis.

Recommendation	Details to Recommendation	Timeline	Responsibility for follow-up
Recommendation 4: <u>**Review the training offered to seed cooperatives and build skills to cover training gaps.**</u>	Considering the important training function of Tree Seed Centre staff in supporting the seed cooperatives that supply the Centre with tree seed, we recommend a review of the existing training being offered by Centre staff to the cooperatives. As part of the current training needs assessment, an initial review of these materials was made, but this needs to be done in detail by a reviewer fluent in Kinyarwanda (the language of most training). This detailed review, which we recommend should be conducted by staff in the CIFOR-ICRAF Rwanda office, should identify important gaps in the training of the cooperatives. This will in turn identify gaps in the Tree Seed Centre's staffs' skills that should be enhanced to support the development of a new curriculum for the more effective teaching of the seed cooperatives' members. The last 'formal' training given by Centre staff to cooperatives was in 2020, and since then a number of new projects with a strong focus on tree seed and seedling delivery, including TREPA, have begun in Rwanda. A review of the Centre's training curriculum and training functions with respect to the seed cooperatives is therefore especially timely. We have already observed that enhancements are needed in the training being offered to cooperatives on the identification, definition and documentation of tree seed sources (see also Recommendation 10). In terms of source definitions, we strongly recommend that the following four source categories should be applied for implementation in seed collection during the training of cooperatives: <u>farmland</u>, <u>natural vegetation</u> (i.e., natural or semi-natural tree populations), <u>plantation</u> or <u>seed orchard</u>. Therefore, enhancing understanding, and teaching skills, of the Centre's staff in the application of these source categorisations is recommended. This particular skills enhancement for Centre staff should be covered (or covered at least in large part) by our Recommendation 1 above.	Because of the particularly important role that cooperatives have in tree seed supply in Rwanda, we recommend that the review of the training materials for the cooperatives should be an immediate priority (2024). We further recommend that this review exercise be repeated every two years to maintain the relevance of the training.	Tree Seed Centre to provide curriculum used for training seed cooperative members to CIFOR-ICRAF for detailed review. Tree Seed Centre, with support from CIFOR-ICRAF in building the Centre's staff skills, to enhance training on tree seed sourcing, including in the use of the four source categories.
Recommendation 5: <u>**Focus on shared 'strategic' learning with other tree seed centres.**</u>	We recommend that shared strategic learning with other tree seed centres is important for the Rwandan Tree Seed Centre. This is to create a more effective national tree seed and seedling sector in Rwanda, and to allow other countries to learn from Rwanda's experiences. We suggest that experience-sharing should focus on understanding how the interactions between the different stakeholders in the tree seed sector can be	We suggest (1) be scheduled as soon as possible, from 2024. We suggest (2) begin from 2025.	Tree Seed Centre to initiate discussions with CIFOR-ICRAF in support of the Recommendation.

Recommendation	Details to Recommendation	Timeline	Responsibility for follow-up
	made more optimal at national and sub-national levels, and how this should affect strategy and policy. These aspects have been shown elsewhere to be central to an efficient and sustainable tree seed and seedling sector. We suggest three approaches to implement the current Recommendation, two which are concrete and a third that is currently more speculative: (1) We recommend bilateral exchange visits between the Rwandan Tree Seed Centre and another African tree seed centre for strategic discussions. The other centre to choose depends on several considerations, with arguments for and against as to whether it should be from a country with a similar sectoral structure to Rwanda (to explore alignment opportunities) or a different sectoral structure (to understand differences that may support sectoral realignment into a more effective structure). On balance, the former option is likely most pragmatic. (2) We recommend the close integration of the Rwandan Tree Seed Centre and the wider Rwanda Forestry Authority into platforms for learning and partnerships that will additionally (to TREPA) be resourced by the German International Climate Initiative (IKI) *Right Tree in the Right Place for the Right Purpose* project (RTRP-Seed) that runs from March 2024 to February 2030 and which includes Rwanda as one of the implementing countries. The other countries involved in this project's implementation are Burkina Faso, Ethiopia, Kenya, and Uganda, covering a broad spectrum of sectoral structures. Of these countries, Ethiopia in particular has had significant recent experience in tree seed and seedling sectoral development, through the *Provision of Adequate Tree Seed Portfolio in Ethiopia* project (PATSPO). Through the RTRP-Seed partnership platform, Rwandan sectoral stakeholders will be able to learn more about appropriate enabling environments for the tree seed and seedling sector from other countries, while the RTRP-Seed knowledge platform will provide Rwandan colleagues with access to a broader range of 'international' decision-support tools and training materials that are of relevance. TREPA and RTRP-Seed can efficiently collaborate in these activities to support synergistic outcomes for skills development. (3) A more speculative approach for implementing this Recommendation is to set up an African Academy on Tree Seed and Seedling System Development. This could have a similar ethos to the existing UC Davis African Plant Breeding Academy that CIFOR-ICRAF hosts in Nairobi and which supports orphan crop	We suggest (3) be an objective for the longer term (revisit in 2026).	

Recommendation	Details to Recommendation	Timeline	Responsibility for follow-up
	improvement and planting material delivery. Whether this third approach could be implemented will depend on wider discussions and fund raising.		
Recommendation 6: Recognise staff participation in training.	We recommend that when staff successfully undertake courses or other training activities, this should be recognised through the award of 'successful completion' certificates. This will support individual staff member's professional development and provide motivation. For the training courses that have already been carried out as part of TREPA, certificates should be retrospectively awarded to successful participants if they have not already been awarded.	This Recommendation should be implemented immediately (2024, with backdating to 2023 as need be).	Tree Seed Centre to raise with training partners.
Recommendation 7: Fill vacant positions.	This Recommendation refers to staff capacity gaps in the Tree Seed Centre rather than to a skills gap for the current staff. While important vacant staff positions in the Tree Seed Centre's 'organogram' have been recently filled, including in the time interval between undertaking the current training needs assessment and the publication of this report, two important positions remain empty. These are a Seed Production and Traceability Officer position and the Tree Seed Centre Management Specialist position. In our view, both these vacant positions should be filled as soon as is possible. This is to improve the quality of tree seed sourcing in Rwanda, which is a core issue for the sector, and to negotiate any shifts in the Centre's mandate that come from the update of Rwanda's National Tree Reproductive Materials Strategy, which will happen later in 2024.	This Recommendation should be implemented as soon as is possible (2024).	Tree Seed Centre.
Recommendation 8: Focus on developing skills in seed standards development and application. [Note: this Recommendation depends on the strategic direction taken by Rwanda's	If Rwanda's updated National Tree Reproductive Materials Strategy reinforces an emphasis on developing the private sector for tree seed delivery, we recommend that courses and mentoring programmes be undertaken to provide training to Tree Seed Centre staff that supports their involvement in the development and implementation of practical and effective policies and standards for the tree seed and seedling sector. This training will support a possible shift in the Tree Seed Centre's role away from direct seed provision to quality-assurance and technical-support functions.	If this Recommendation proves relevant following the update of Rwanda's National Tree Reproductive Materials Strategy, then we recommend it be implemented as	Tree Seed Centre, to draw on CIFOR-ICRAF support.

Recommendation	Details to Recommendation	Timeline	Responsibility for follow-up
National Tree Reproductive Materials Strategy as it revised later in 2024.]	Foundational to standards development will be to increase the understanding among Centre staff of appropriate indicators of seed quality.	soon as possible (from 2024, if feasible).	
Recommendation 9: Focus on developing skills for providing technical support to seed suppliers and for facilitating supplier networking. [Note: this Recommendation depends on the strategic direction taken by Rwanda's National Tree Reproductive Materials Strategy as it revised later in 2024.]	If Rwanda's updated National Tree Reproductive Materials Strategy reinforces an emphasis on developing the private sector for tree seed delivery, we recommend that courses and mentoring programmes be undertaken to provide training to Tree Seed Centre staff that supports their involvement in the development of a broad range of new small and medium enterprises as providers of tree seed, in terms of the technical help that these enterprises will require. This technical support should embrace seed source identification, definition and documentation; quality foundation tree seed provision; and seed quality standards.

The training provided to Centre staff should also support them in the development of skills to link commercial seed supplier enterprises, including the existing seed cooperatives, directly (i.e., the seed flows not first passing through the Centre) to other seed retailers and to tree seedling providers (tree nurseries). | If this Recommendation proves relevant following the update of Rwanda's National Tree Reproductive Materials Strategy, then we recommend it be implemented in the mid-term (2025). | Tree Seed Centre, to draw on CIFOR-ICRAF support. |
| **Recommendation 10: Prioritise technical skills development on native trees species with seed cooperatives.** | We recommend that particular courses/other training activities with seed cooperatives be undertaken focused on the features of native tree species. Training should include on species identification; the identification, definition and documentation of seed sources; seed source management; seed collection methods; and methods for initial post-collection seed processing and storage.

This training should focus on native trees that have been identified as priorities for planting in Rwanda through TREPA and other prioritisation exercises.

This training could be provided in parallel with the broader training offered by the Tree Seed Centre to cooperatives (see Recommendation 4 on the revision of this curriculum). | We recommend that this training on native tree species be provided as soon as is practicable (2024, but only after Recommendation 2 has been achieved).

We suggest it should then be repeated every two years. | Tree Seed Centre, to draw on CIFOR-ICRAF support. |

Recommendation	Details to Recommendation	Timeline	Responsibility for follow-up
Recommendation 11: Prioritise business skills development for seed cooperatives.	We recommend that courses/other training activities be undertaken to support the business development of seed cooperatives. This training should include on cooperative governance; accounting and record keeping; seed quality assurance; activity management; communication; and negotiation. This training for cooperatives is already important currently to support their position with the Tree Seed Centre. However, if Rwanda's updated National Tree Reproductive Materials Strategy supports the involvement of cooperatives in the 'direct' supply of tree seed to the wider market, then this training will be even more important. Business training should involve working with Business Development Officers within the relevant District locations of the cooperatives. These Officers will themselves need to have their skills enhanced in terms of their understanding of tree seed and seedling systems, and the challenges cooperatives face in their engagement in the sector.	We recommend business training for cooperatives be a mid-term priority (2025).	Tree Seed Centre, to draw on partner support.
Recommendation 12: Train existing stakeholders in broader roles in the tree seed and seedling sector. [Note: this Recommendation depends on the strategic direction taken by Rwanda's National Tree Reproductive Materials Strategy as it revised later in 2024.]	If Rwanda's updated National Tree Reproductive Materials Strategy provides space for the further commercialisation of tree seed and seedling supply by allowing seed suppliers to directly enter the wider market (rather than just supplying the Tree Seed Centre with seed), then new 'value chain' opportunities will arise. Offering training to existing seed providers (the cooperatives) on commercial nursery production, including in both technical and business issues; and offering technical training to current commercial seedling providers (existing nurseries) in seed collection (along the lines described in other Recommendations), will be relevant.	If this Recommendation proves relevant following the update of Rwanda's National Tree Reproductive Materials Strategy, then we recommend it be implemented in the mid-term (2025).	Tree Seed Centre, to draw on partner support.
Recommendation 13: Support shared learning among seed cooperatives.	We recommend that opportunities for shared learning across the seed cooperatives are provided. We recommend this be done through exchange visits and workshops where the members of cooperatives come together to share their	Notwithstanding that Rwanda's current National Tree Reproductive Materials	Tree Seed Centre, to draw on CIFOR-ICRAF

Recommendation	Details to Recommendation	Timeline	Responsibility for follow-up
	current practices and experiences. These experiences will include the barriers they face to more effectively participate in tree seed supply systems. During these events, as well as the opportunities for cross-cooperative learning, independent technical and business experts should provide advice, based on the existing knowledge of the barriers that cooperatives face, and addressing any additional barriers identified by the cooperatives during the visits and workshops themselves. We strongly recommend that the first event should be a workshop that brings representatives of <u>all</u> the cooperatives together. This will help to identify any particular skills gaps that have been missed in the current training needs assessment that relied on discussions with only a subset of the seed cooperatives, as it is likely that each cooperative will have some unique features and concerns for skills development. In this workshop, the findings of the current training needs assessment, especially with regard to the seed cooperatives (Recommendations 9 to 13), should be shared within an introductory discussion.	Strategy is currently under revision and that the outcome may affect the specific objectives of such exchange events going forward, we would suggest that these shared learning events already be implemented as soon as is possible (2024). Further rounds of events, taking account of any shifts in the updated Strategy, should be carried out in the mid-term (2025 and 2026).	and other partners' support.

Summary

The *Transforming Eastern Province through Adaptation* project (TREPA) is an initiative aimed at restoring and transforming degraded landscapes in Rwanda's Eastern province. Component 3 of TREPA is focused on the strengthening of national and local institutional capacity, and cross-sectoral coordination, to mainstream climate resilience in land management and planning. Part of Component 3 is to enhance tree seed and seedling supply systems, to provide for planting diverse climate-adapted tree species and varieties. An important initial element of this work is to undertake a capacity needs assessment of the tree seed and seedling sector in Rwanda. This assessment involves a number of separate activities that include: a skills gaps/training needs assessment of 'seed' stakeholders in the sector; an assessment of possible providers of training to address the current identified 'seed' skills gaps; an assessment of 'seed' infrastructure capacity; and a review of nursery seedling providers' capacities and needs (including skills gaps).

The current document reports on the first of these activities – the skills gaps/training needs assessment of seed stakeholders specifically – which was conducted primarily in November and December 2023 in Rwanda, and was further supported by follow-up discussions held online. The report is based on discussions and other assessment activities undertaken with the staff of Rwanda's Tree Seed Centre (which is part of the Rwanda Forestry Authority), with broader Rwanda Forestry Authority staff, with CIFOR-ICRAF TREPA staff, and with the members of 'seed' cooperatives who supply the Rwandan Tree Seed Centre with tree seed.

The current report lists 13 recommendations in total that are priorities for skills development. Nine of these are related to the Tree Seed Centre and 'similar' partner institutions, and four are related to the seed cooperatives. Several of the Tree Seed Centre recommendations relate to skills development in support of the seed cooperatives. The report also gives guidance on the timings and responsibilities for the implementation of the recommendations.

As explained clearly in the recommendations, the relevance of some recommendations depends on the direction that will be taken by Rwanda's National Tree Reproductive Materials Strategy that is currently in the process of being updated.

The current report will be complemented by the skills gaps assessment still to come for seedling providers.

Acknowledgements

1. Introduction to the training needs assessment

The *Transforming Eastern Province through Adaptation* project (TREPA) is an initiative aimed at restoring and transforming degraded landscapes in Rwanda's Eastern province. The project focuses on promoting the development of climate-resilient agricultural and tree value chains as a means of achieving restoration.

Component 3 of TREPA is focused on the strengthening of national and local institutional capacity, and cross-sectoral coordination, to mainstream climate resilience in land management and planning. As part of Component 3, TREPA will enhance tree seed and seedling supply systems to provide diverse climate-adapted tree species and varieties, for agroforestry, forestry and horticulture. CIFOR-ICRAF, with the assistance of the University of Copenhagen, provides support to this task.

An important initial element of TREPA Component 3 is to undertake a capacity needs assessment of the tree seed and seedling sector in Rwanda. Such an assessment is important to help address underlying problems faced in tree seed and seedling delivery systems that are faced in many countries, including Rwanda. Effective tree seed and seedling delivery systems are key for enabling farmers, foresters and other tree growers to plant trees to enhance livelihoods, support biodiversity and combat climate change, but current systems are generally highly suboptimal. Growers often using planting material of unknown history and poor performance. Genetically, planting material is often neither matched to the conditions of the planting site nor to the planting purpose; and, physiologically, seed is often of low viability. In addition, typically the seeds and seedlings of only a few tree species are available for planting, whereas broad species diversity would better serve planters needs and landscape restoration targets.

A capacity needs assessment of the tree seed and seedling sector constitutes a number of separate activities, of which the current document reports on a skills gaps/training needs assessment for 'seed' supply (i.e., not seedling supply). Other parts of the capacity needs assessment that are to follow in 2024 include: an assessment of training needs providers for addressing identified 'seed' skills gaps (and the prioritisation of these training providers based on their ability to provide suitable tenders); an assessment of 'seed' infrastructure capacity; and a review of nursery seedling providers' capacities and needs (including skills gaps). These activities will be complemented by a sectoral assessment that will provide inputs on policy and institutional-relationship gaps and opportunities.

The current document reports only on the first of the capacity needs assessment activities – the skills gaps/training needs assessment of seed stakeholders – which was conducted primarily in November and December 2023 in Rwanda, and was further supported by follow-up discussions held online. However, the current report also contains some limited information relevant for supporting other elements of the wider capacity needs assessment, as will be outlined. The current report will be complemented later by the skills gaps assessment that is still to come for the tree seedling providers.

A capacity needs assessment of the tree seed and seedling sector in Rwanda is particularly pertinent at the current time, as Rwandan colleagues will publish an updated National Tree Reproductive Materials Strategy later in 2024. The relevance of some of the recommendations in the current training needs assessment report depends on the direction that will be taken in this Strategy. This is especially so for potentially developing the involvement of small and medium enterprises in the provision of tree planting material and for a potential shift in role of the Tree Seed Centre to quality-assurance and technical-support functions rather than seed supply *per se*.

The team conducting the current training needs assessment that is reported in this document were Moussa Ouedraogo (ex-director of the Centre National de Semences Forestières in Burkina Faso – Burkina Faso's Tree Seed Centre), Ian Dawson and Samuel Muthemba (both of the latter work for CIFOR-ICRAF; Ian is based in the UK, Sam in Kenya). The assessment was carried out along with the Rwanda Forestry Authority, and with the support of the CIFOR-ICRAF Rwanda country office, including the CIFOR-ICRAF TREPA team. Online follow up discussions were to bring in more participants into the assessment, and to seek clarifications to already collected information where necessary.

The process of drawing in inputs in support of the current report concluded with an online workshop on 26 April 2024. In this workshop, the assessment team presented a draft report of the training needs assessment including draft recommendations. In the workshop, Rwandan colleagues indicated clarifications and refinements, and there was a final discussion of outstanding issues related to the methods used in the assessment. The wording and content of the final set of recommendations presented in this final report take into account these discussions. Any remaining outstanding issues about the assessment itself are also noted in this final report.

In the sections below, the current report begins with the methods that we used for the assessment. In deciding our methodology, we were fortunate to be able to draw on the previous training needs assessment approaches of our colleagues at CIFOR-ICRAF, the University of Copenhagen, and elsewhere. Particularly useful for us was to look at the methods used by Arvid Sloth and colleagues to undertake a training needs assessment of the tree seed and seedling sector in Ethiopia, conducted as part of the Provision of Adequate Tree Seed Portfolio in Ethiopia project (PATSPO) that is supported by Norway's International Climate and Forest Initiative (see further information on the PATSPO assessment in the Methods section of the current report). After the methods section, we relate the findings from our training needs assessment that are the basis of our recommendations. The final section of the report refers to the outstanding issues from the assessment.

The specific Terms of Reference provided to the assessment team for the current assessment are given right at the end of this report (Supporting Information1). These may be useful for those considering carrying out similar assessments, although we urge future assessors to read the current report in its entirety as a basis for designing assessments. We would also urge that these future assessments, as far as is possible, use standardised method components – building on what we have done and Sloth et al. did – to support cross-country comparisons that are useful for up and outscaling in skills development.

2. Training needs assessment methods

2.1. Overview

In the current assessment, our major objectives were to engage with and identify skills gaps in the Rwandan Tree Seed Centre (within the Rwanda Forestry Authority) and the 'seed' cooperatives that supply the Tree Seed Centre with seed. We also, however, collected information that we considered relevant to these points from a wider group of Rwanda Forestry Authority staff, importantly including leadership, and from CIFOR-ICRAF staff that are involved in tree seed- and nursery-related issues within TREPA.

For the interpretation of the findings of our assessment, it is important to note that within Rwanda the Tree Seed Centre is currently the only 'official' supplier of tree seed. It however devolves the collection of this seed to independently-run seed cooperatives dispersed around the country. Currently, there are ten of these cooperatives.

The participants that were part of this training needs assessment and their locations in Rwanda are listed, respectively, in Appendices 1 and 2 of the current report. Locations are also shown in the map below. In accordance with the TREPA workplan, the whole of Rwanda was considered for the current assessment, not only the Eastern Province of the country that is referred to in the project name. The reason for this is that, given the relatively small landmass of Rwanda and the way that tree seed and seedling sourcing currently operates nationally, understanding the tree seed and seedling sector countrywide is needed for supporting tree planting at any location in the nation.

When considering the findings of our training needs assessment, it is important to remember that the focus of the current study is on seed (not seedling) providers. As has already been noted, skills gap assessment for nurseries is covered by a separate activity to the current assessment, and only once that activity has been completed will an overall picture of skills development needs for the sector be available.

Training needs assessment as a discipline can involve a wide range of tools and approaches. Here, our starting point was to consider the approaches that had been used in a training needs assessment for a prior 'CIFOR-ICRAF' project on tree seed and seedling supply – the Provision of Adequate Tree Seed Portfolio in Ethiopia project (PATSPO). We took the methods applied in PATSPO by Arvid Sloth and colleagues and considered how they could be adapted for the specific situation of Rwanda.

There is much crossover in appropriate methods for training needs assessment across different situations and countries, and the use of the same 'toolbox' is highly desirable for standardisation purposes, to scale interventions regionally and continentally. The situation for tree seed supply in Rwanda is somewhat different from that in Ethiopia, however, and this means that the individual tools for training needs assessment useful for the two countries are different. The difference between the countries is due to the particular roles played by the Tree Seed Centre and the seed cooperatives in Rwanda. These have already been outlined, but in brief relate to the Centre selling seed but not engaging directly in seed collection itself; and the seed collection instead being carried out by the independent cooperatives, who sell seed only to the Centre.

In addition to the requirements of the specific sectoral structure of the tree seed and seedling sector in Rwanda, a training needs assessment is a highly collaborative process, and this means co-evolving with stakeholders the particular tools that are appropriate for a given assessment. The refining of methods and of the specific lines of enquiry for the current training needs assessment was undertaken in partnership with the Rwanda Forestry

Authority, especially with the Tree Seed Centre staff. Specific information on the methods used in the current assessment are related in the following sub-sections of this report.

Map of Rwanda showing visited locations during the current training needs assessment of tree seed supply. The locations of the two Tree Seed Centre sites we visited are shown with black highlighting (in Huye and Gatsibo). The locations of the four seed cooperatives we visited are also shown, as well the location of Green Smart Farm that is a commercial tree seedling supplier we visited, and CIFOR-ICRAF's (shown on the map as ICRAF's) Rwanda office in Kigali. The map shows Rwanda's Provinces, and the names of the particular Districts where the Tree Seed Centre sites, seed cooperatives, commercial tree seedling supplier and CIFOR-ICRAF's office are located.
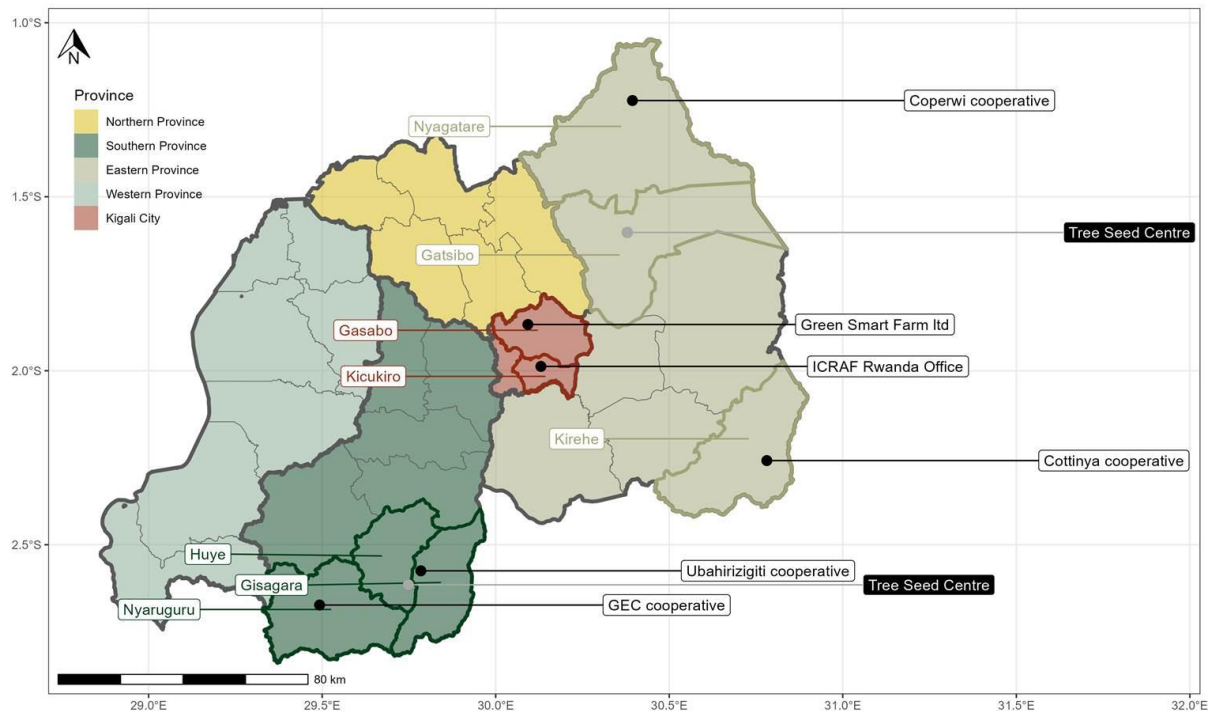
2.2. Discussions on staffing

A good starting point in a training needs assessment is to understand the overall staffing situation at an institution (the term 'institution' here is taken to embrace both the Tree Seed Centre and the seed cooperatives). This involves looking at the match between the skills of staff and the objectives of the institution. An important source of knowledge on this match comes through establishing the coverage and relationship among staff in the institution. As part of this exercise for TREPA, we constructed a simple 'organogram' for the Tree Seed Centre which showed filled staff positions, current vacancies and the relationships among staff. The organogram was drawn up through discussion with the manager (the Acting Director) of the Tree Seed Centre. This allowed us to comment on how important or not the filling of current vacancies is for the Tree Seed Centre.

2.3. Individual semi-structured interviews with staff to assess skills development needs

Consultations with staff on their roles, responsibilities and barriers to effective operation are an important part of assessing skills gaps. In the current TREPA training needs assessment, engaging in these discussions through semi-structured interviews was the primary means chosen for collecting information on skills gaps. The sets of questions used for the assessment were arrived at in consultation between the training needs assessment team and Rwanda Forestry Authority staff.

Two different sets of questions were devised: the first set was for Tree Seed Centre staff and the staff of 'similar' partner institutions (this set of questions is provided in Appendix 3); the second set was for the members of the seed cooperatives supplying the Tree Seed Centre with seed (these questions are shown in Appendix 4).

In the case of the questions for the Tree Seed Centre staff, an initial subset of questions for all staff was drawn up; these questions were followed with a further subset of questions of a more strategic nature that were of more relevance for the more senior staff in the Centre to address (i.e., those staff who have the broadest picture of the institution's work and how it fits with the tree seed and seedling sector in Rwanda as a whole). We decided whether it was relevant to ask staff these further 'strategic' questions on a case-by-case basis during data collection. In the case of the questions for the seed cooperatives, there was no subsetting of questions – the same questions were used with all respondents.

Where possible, we presented questions to individual Centre staff and individual cooperative members face-to-face in an interview setting. This allows the clarification of the questions where necessary, and provides for the further exploring of responses. Where this was not possible, however, due to time constraints or other practicalities, the questions for Centre staff were distributed as a printed questionnaire or electronic Word file, to be filled out by the individual staff and then scanned and returned by email to the training needs assessment team. For seed cooperatives, however, responses to questions were only collected by face-to-face interview.

For all conducted interviews (and for the individual written responses, when collected), the responses to questions were input on an individual-by-individual basis into online Google Sheets. The information we gathered is not presented at an individual level in the current report, but is summarised. However, **individual responses can be drawn on for the skills development of specific individuals in the future, as these data have been retained** (contact Samuel Muthemba).

In theory, an adaptive learning approach could have been taken in the use of our question sets, with the questions evolving through the assessment exercise. We did not however identify any major gaps in our sets of questions during initial interviews, so we kept them the same throughout the current training needs assessment. Although this does not preclude making changes to the questionnaires for further training needs assessment related to tree seed supply, **we would suggest retaining the current question set and adding to it rather than removing questions, for ensuring some consistency**.

Although the focus of the current exercise was to assess skills development needs, we took the opportunity of speaking with Tree Seed Centre staff and seed cooperative members to capture some initial information on broader capacity (equipment and software) needs, noting that fuller insights on this will be captured in a separate part of the overall capacity needs assessment for the tree seed and seedling sector. In addition, for the case of cooperatives, the Tree Seed Centre asked specifically that during interviews the seed cooperatives should be addressed about how the Centre could better support them in their work. Again, this question was somewhat outside the current remit of the training needs assessment, although this question does reveal information that could be relevant for the Centre's staff skills development needs.

During the current exercise we also asked respondents to identify possible locally-situated institutions that could help address skills gaps identified in the training needs assessment. Strictly speaking, this information too was outside the remit of the current assessment, but the assessment team decided the current assessment provided the opportunity to gather preliminary information. **The gathered information on possible training providers is not**

reported in the current document but is available as a starting point for the further planned assessment (contact Samuel Muthemba).

2.4. Group facilitated discussions with staff on skills development needs

When time allows to build on the outputs from approach 2.3 above, further discussion with groups of staff is a useful way to reach a degree of consensus on the key issues for skills enhancement. In this approach, the staff are convened and an open discussion is held about skills gaps that takes the key findings from individual assessments as the starting point. In the current training needs assessment exercise, we were able to embrace an element of this approach through group discussion with Tree Seed Centre staff at the Huye site, and in discussion with groups of the seed cooperative members. However, we did not have the opportunity for group discussions of findings with all the consulted seed cooperatives.

2.5. Observing the work flows/processes that staff are engaged in and questioning them about what they are doing and why

Observing staff in their daily routines for gaps in protocols and procedures is an important approach for identifying skills development needs. Ideally, this should be done for all staff individually, but practically this is not always straightforward when an assessment team visits an institution for only a set period of time, and when staffs' activities are seasonal and varied. As the current training needs assessment was conducted during the busyness of the planting season, we did not adopt the approach of staff observation in the current assessment, beyond quickly observing the work going on in the Tree Seed Centre in the time available outside other assessment exercises. The Tree Seed Centre staff said, however, that they would value the detailed application of this approach in future.

2.6. Ranking of possible training materials

When training materials (or outlines and strategies for possible training) are already available for addressing skills gaps, it can be useful to find out from staff which of these resources (or potential resources) they think could be most useful to address their skills development needs.

In the current TREPA training needs assessment, we asked staff of the Tree Seed Centre and of similar partner institutions to rank sets of training course/activity options of relevance to tree seed and seedling supply and sectoral development that have already been developed or are in planning. This ranking exercise was only done after exercises 2.3 and 2.4 above, because we wanted the exercise to be an opportunity to reflect on the 'next step' after skills gaps have been identified, rather than to identify skills gaps themselves.

This exercise was only done for the Tree Seed Centre (and related institutions') staff and not for seed cooperative members, as in the latter case we felt the training needs were simpler and that the cooperatives would not benefit from this type of option-ranking exercise.

The already-identified training course and activity opportunities that are available or are in planning stage that we used as options in the current ranking exercise came in large part from different training options identified to be important for addressing skills gaps in PATSPO – the Ethiopian tree seed and seedling sector development project already mentioned. Notwithstanding the specific individual context of each country, we used these PATSPO training activities as options in the current assessment, as we expect an overlap in skills gaps between Ethiopia and Rwanda (and other sub-Saharan African countries).

However, we added a specific TREPA training option related to tree seed and seedling systems and climate change in the current ranking exercise. Although the issue of climate

change is as crucial to Ethiopia as to Rwanda, TREPA places more specific attention to climate change than PATSPO training has to date, so this training option has not yet been specifically looked at by PATSPO. We also added an option for the current ranking exercise related to 'strategic' training in tree seed sector assessment and development. Again, this is an important issue in Ethiopia as well as Rwanda, but it has not featured in the list of PATSPO training options as a specific activity to date for Ethiopia. It should be noted that for each of these two training options, significant effort is needed to develop them further.

Our list of training courses/activities for ranking had 14 entries in total. Accounting for the two specific TREPA entries (see last paragraph), the other 12 entries therefore came from PATSPO. These latter 12 entries generally relate on a one-to-one basis to earlier-defined PATSPO training options. This is not always the case, however: in a few cases we merged or split PATSPO training activities to fit better with what we (the training needs assessment team) consider to be a more defined and consistent set of training activities aligned to sectoral needs for Rwanda.

The ranking exercise we used with participants in the current training needs assessment is provided in Appendix 5, while more information on the courses/training opportunities to which the exercise refers is provided in Appendix 6. In the longer descriptions of Appendix 6, we explain how the 14 prospective courses/training opportunities for TREPA relate to the already-devised (resources for training available or in plan) PATPSO training options, and we provide further information on the additional TREPA options.

In order to carry out the ranking of the 14 training courses/activity options effectively, we split them into three categories, as follows: 'core practical activities'; 'marketing and demand activities'; and 'management and advanced learning activities'. There were more training options that fell into the first of these categories than for the other two categories. Therefore, we split the options for the first category into two smaller groups, so that there were four groups of courses in total for ranking, each of which contained either three or four options. The 'core practical activities' courses were intended to be ranked by all staff undertaking the ranking exercise. The other courses, which are of a more strategic nature, were intended to be ranked by more senior staff with a broad picture of the tree seed and seedling sector. In practice, however, we just allowed each staff member to decide for themselves which of these further categories of courses they wished to rank.

In the current assessment, rather than asking for the ranking of training options in face-to-face individual- or group-discussions with staff, we asked individual staff to rank the courses as a 'paper' exercise completed in the absence of the training needs assessment team. This reflected the practical time constraints to undertake the exercise.

The findings of the ranking exercise were input on an individual-by-individual basis into online Google Sheets. As with the semi-structured interviews (see above), findings are not presented at an individual level in the current report. **However, individual responses can be drawn on for the skills development of specific individuals in the future, as these data have been retained** (contact Samuel Muthemba).

Further information on how to implement TREPA-prioritised training course/activities is provided in Appendix 6**.**

3. Findings of the training needs assessment

3.1. Skills gaps for the Tree Seed Centre and similar partner institutions

The primary focus here was an assessment of the skills gaps of the Tree Seed Centre itself, but we also gathered information from a broader cross-section of Rwanda Forestry Authority staff, and from CIFOR-ICRAF staff involved in tree seed and seedling supply as part of TREPA. The emphasis in interpreting findings here is in terms of national sectoral needs (i.e., primarily, at this stage, the needs of the Tree Seed Centre). As already noted above, the Tree Seed Centre itself does not currently collect tree seed, but devolves this responsibility to seed cooperatives that it supports through various measures including training and the provision of some equipment, and by purchase of the collected seed. This *modus operandi* has some specific implications for training needs, as will be addressed immediately below and in sub-section 3.2 (on the cooperatives).

As already noted in the methods section to this report, for the interviews and the ranking exercise findings outlined below, we collecte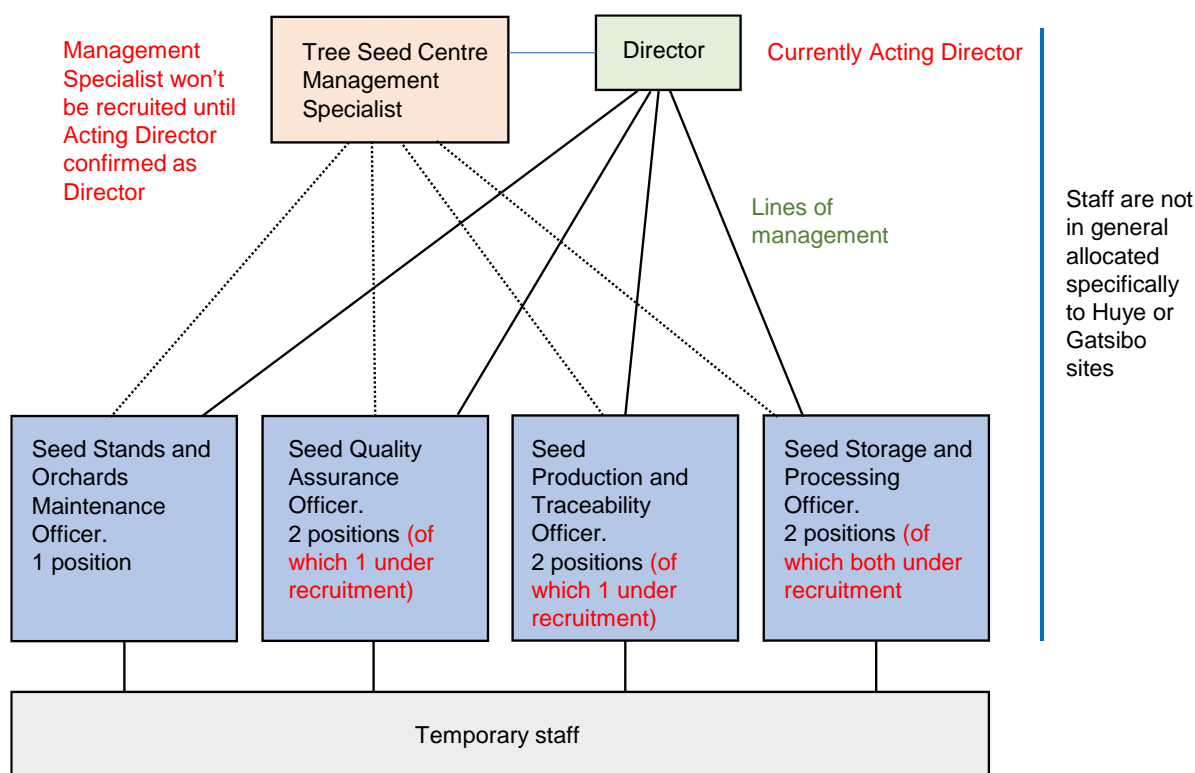d information on a named individual basis. **Information at this level is not reported here, but is held by the authors (Samuel Muthemba) and is relevant for personalised training programmes.**

Tree Seed Centre
We were able to hold individual and/or group discussions on skills gaps with all four 'in position' technical/management Tree Seed Centre staff, including the Acting Director, and we were able to make a quick tour of the Tree Seed Centre's facilities at its two 'bases' of Huye and Gatsibo. An 'organogram' of the Centres planned complement of seven 'technical' and two 'management' staffing positions (nine positions in all) as of November 2023 is shown below, which indicates the five positions unfilled at the date of our assessment: these are four 'technical' staff positions and a 'management' position. The specific unfilled positions as of November 2023 were as follows: one of two Seed Quality Assurance Officer positions ('technical'); one of two Seed Production and Traceability Officer positions ('technical'); both Seed Storage and Processing Officer positions ('technical'); and the position of the Tree Seed Centre Management Specialist ('management'). Since the time of our assessment, three of these positions have been filled: the one vacant Seed Quality Assurance Officer position and both Seed Storage and Processing Officer positions. **In the future, it will be very useful to hold discussions on skills gaps/training needs with these newly-placed staff.** As of the date of the publication of this report, therefore, one Seed Production and Traceability Officer position is unfilled and the Tree Seed Centre Management Specialist.

In our view, both these vacant positions should be filled as soon as is possible. Based on identified needs for improving seed sourcing with seed cooperatives (see below), recruiting the empty Seed Production and Traceability Officer position is important. We understand that the open position for the Tree Seed Centre Management Specialist will be recruited only when the current Acting Director is confirmed as Director, but the extra operational capacity to the Centre that recruiting the Management Specialist will bring is important for meeting Rwanda's increased tree seed needs and for practically negotiating any shifts in the Centre's role indicated in the next version of the National Tree Reproductive Materials Strategy.

Rwanda Tree Seed Centre 'organogram' for 'management' and 'technical' staff, November 2023.
Note that between our assessment and the publication of this report the vacant positions for the Seed Quality Assurance Officer and the Seed Storage and Processing Officers have been filled. *In addition, since our assessment the Centre has recruited two Accounting Officers and two Drivers.*

Management Specialist won't be recruited until Acting Director confirmed as Director

Tree Seed Centre Management Specialist

Director

Currently Acting Director

Lines of management

Staff are not in general allocated specifically to Huye or Gatsibo sites

Seed Stands and Orchards Maintenance Officer.
1 position

Seed Quality Assurance Officer.
2 positions (of which 1 under recruitment)

Seed Production and Traceability Officer.
2 positions (of which 1 under recruitment)

Seed Storage and Processing Officer.
2 positions (of which both under recruitment

Temporary staff

The four Tree Seed Centre staff with whom we had discussions about skills gaps are all relatively new to the Centre (employed for less than 10 years; the Acting Director was recruited in 2022). They are highly motivated and committed to the objectives of the Centre. The relative newness of staff has contributed to a gap in the 'institutional memory' of the Centre that causes some issues with regard to retrieval of information including know-how in using pre-existing Centre equipment.

Priority skills gaps identified by Tree Seed Centre staff are, in the case of management, in project proposal writing and in the development of sectoral strategy, including in how to develop the best model for the operations of the Centre in the context of working with other stakeholders to optimise overall country-wide tree seed and seedling provision in Rwanda.

At a technical level, staff identified that priority skills gaps exist in: seed science, including pathology techniques and in the use of existing seed laboratory and seed processing equipment; in how to design, establish and manage seed production stands; in how to carry out tree genetic improvement, identify seed 'genetic quality' and integrate genetic improvement practically into seed systems; in non-seed-based (vegetative) propagation methods; in species identification; and in relevant seed pretreatments. Addressing the skills gaps for genetic improvement, propagation (vegetative and seed pretreatments), and species identification, are seen as especially important for work on new (native) tree species. Knowing more about how best to store native tree species' seeds is also an important concern of Centre staff.

Mentoring programmes, cross-institutional co-learning, formal degrees and short courses (including practical 'learning-by-doing' courses) were all identified by Centre staff as potential

methods for addressing the skills gaps identified in the paragraph above. These options have been taken into account in the formulation of the current report's recommendations. They will also be further considered in the assessment of training needs providers for addressing skills gaps that is part of the wider capacity needs assessment for the tree seed and seedling sector in Rwanda (at outlined above).

Staff receiving appropriate recognition for undertaking training that enhances their capacities and supports their professional development – such as by rewarding, and noting, certificates of completion of courses – was seen as an important feature. Staff indicated that better access to decision-support tools and databases would support more effective native tree species' seed storage. Furthermore, staff indicated improved access to online publications that are currently behind paywalls would support all aspects of their work, as well as would the digitisation and making available online of currently 'offline' Rwanda-specific resources ('grey literature', logs, maps, etc., for the country, whose making available would support more effective, more efficient, and more targeted, tree seed supply and use). For tackling climate change, the need for improved skills in understanding the genetics of climate change adaptation, and how this affects what to plant where, were identified by staff as a priority.

Although it was not the purpose of the current assessment to focus on equipment and software needs, as this is covered by another element of the overall capacity needs assessment, we did seek some initial information on these needs during the current assessment, as there could be important skills development implications. In this regard, staff indicated the importance of having software that allows easy (seamless) tracking, linking and reporting of the different Centre activities. This is for purposes of internal operational efficiency in documenting seed sources in the field and in the Centre's stores, in processing seed requests and in recording dispatches, etc., as well as for being able to provide information to partners.

All of the Tree Seed Centre staff that the training needs assessment team interviewed are involved in training others through mentoring, student study visits to the Centre, field visits with cooperatives, etc. A crucial role that Centre staff have is in training seed cooperative members in seed source identification, definition and documentation; in seed stand management; and in seed collection, processing, initial storage, labelling, etc. Enhancing staffs' skill in the subjects identified in the paragraphs above, and providing better access to 'training of trainers' courses and teaching method resources, would therefore in particular have 'knock on' effects in supporting the skills development of seed cooperatives.

As seed cooperatives rather than the Centre have the 'direct' role currently in tree seed collection in Rwanda, the content of the training provided by the Centre to cooperatives is particularly crucial and should be carefully reviewed so that any gaps are revealed and Centre staff can be enhanced in the skills needed to address the gaps. The identified training needs of seed cooperatives as they have expressed them (see below) should also be integrated into revised teaching materials and syllabuses.

After interviews and discussions with the four Tree Seed Centre staff, a ranking exercise was used with each of the four staff members to find out which, from a series of already-identified training course and activity opportunities, were seen to be of most importance to address skills gaps (the Methods section of this report details the exercise and the courses). As might be expected, Centre staff ranked presented course options in correspondence with their individual responses to our survey of skills needs, and in line with their specific work roles and responsibilities. For example, the Seed Production and Traceability Officer who undertook the ranking exercise put emphasis on how to identify, collect and manage tree seed sources, while the Seed Quality Assurance Officer put emphasis on how to run a seed laboratory, showing the importance of staff-role-tailored courses. In correspondence with the assessment of skills gaps, all staff assigned high importance to a course/activity option on

how to genetically improve tree seed and seedling supply, covering breeding and selection activities.

All staff also gave high or medium importance to a course/activity on how to create tree seed supply information outputs for informing clients on seed use and tree management, and for creating further client demand for seed; and high or medium importance to learning by networking that involves sharing experiences with other institutions involved in tree seed supply.

<u>Wider Rwanda Forestry Authority</u>
Another three Rwanda Forestry Authority staff in addition to Tree Seed Centre staff provided skills gaps inputs. One indicated skills gaps in insect pest control in seed collection and storage, including for native tree species; and gaps in knowledge about pest management approaches for planted trees, including integrated pest management approaches, under climate change. This last skills gap has implications for recommendations of what trees to plant where (that is, such recommendations need to take account of pest and disease problems and how to manage them: a skills gap is being able to make planting material [seed] recommendations that consider pests and diseases and their evolving prevalences under climate change).

Another contributor indicated skills gaps in seed value chains; and in seed stand establishment, maintenance, seed collection, seed treatment, testing and storage. The latter gaps are in line with the gaps indicated by Tree Seed Centre staff, but the gap expressed for seed value chains was unique.

The final contributor also indicated gaps related to seed collection and subsequent tasks in handling and storing seed, as well as in handling pests and diseases.

As with Tree Seed Centre staff, when these three 'wider' Rwanda Forestry Authority staff undertook a ranking exercise of already-identified training course and activity opportunities, these were generally ranked in accordance with individual responses on training needs, as well as with specific work roles. Overall high importance was given to training to: identify, collect and manage tree seed sources; to genetically improve tree seed and seedling supply, covering breeding and selection activities; and to design and deliver climate appropriate portfolios of tree diversity.

We did not attempt to create an organogram of the Rwanda Forestry Authority, but understanding how the Tree Seed Centre, and broader tree seed and seedling supply issues, fits within such an organogram could be a useful future activity for the Tree Seed Centre to lead.

<u>CIFOR-ICRAF TREPA</u>
We also obtained skills gaps inputs from six CIFOR-ICRAF staff involved in different aspects of tree seed and seedling supply as part of TREPA, including inputs from the TREPA Project Manager. These CIFOR-ICRAF staff mostly come from prior employment by national institutions within Rwanda, and in future several will return to these institutions. Thus, an understanding of their skills gaps is of relevance for the development of broad capacity in the national system.

The inputs from CIFOR-ICRAF TREPA staff revealed a broadly similar picture for training needs as the interviews of Tree Seed Centre staff. Again, the issue of skills enhancement for developing sectoral development strategies was mentioned. The need for skills enhancement in methods, including in participatory approaches, for prioritising which tree species to work on – in order to reduce a 'longlist' of species to a 'shortlist' for practical implementation purposes – was also identified. Forestry training within the tree seed and

seedling sector as a whole was also seen as a priority. An additional need mentioned by several CIFOR-ICRAF staff was training in data analysis packages.

Similar to Tree Seed Centre staff, CIFOR-ICRAF staff saw mentoring programmes, co-learning and short courses as possible methods for addressing skills gaps, although CIFOR-ICRAF staff gave more attention to online training opportunities. For tackling climate change, improved skill in understanding the genetics of climate change adaptation was again seen as a priority. Climate modelling skills – in tree species distribution modelling – and an understanding of how to create resilience in the face of variable weather patterns were also seen as important for enhancement.

All of the six CIFOR-ICRAF staff that provided skills gaps inputs are involved in training others in the Rwandan tree seed and seedling sector, and enhancing staffs' skills where skill gaps exist – in subjects as identified by staff as above – would support overall sectorial development.

As with Tree Seed Centre staff and wider Rwanda Forestry Authority staff, when five of the above six CIFOR-ICRAF TREPA staff undertook a ranking exercise of already-identified training course and activity opportunities, these opportunities were generally ranked in accordance with individual responses on training needs, as well as with specific work roles.

Overall, high importance was given to training activities to: identify, collect and manage tree seed sources; to genetically improve tree seed and seedling supply, covering breeding and selection activities; to give good advice to clients on what trees to plant where; and to design and deliver climate appropriate portfolios of tree diversity. This list of standout opportunities was the same as that identified by wider Rwanda Forestry Authority staff (see above), with the exception of the addition of "give good advice to clients on what trees to plant where"' for CIFOR-ICRAF TREPA staff.

We summarised our priority recommended actions for skills development for the staff of the Tree Seed Centre and similar partner institutions in the nine recommendations (Recommendations 1 to 9) at the start of this report.

3.2. Skills gaps for seed cooperatives

As already noted, the Tree Seed Centre 'devolves' the sourcing of tree seed to ten seed cooperatives, which are dispersed around Rwanda. We were able to visit four cooperatives during the present training needs assessment (see map above and Appendices 1 and 2 for cooperative members met and the itinerary for visits). Below, our skills gaps findings for each cooperative are laid out in the order in which the cooperatives were visited, and these findings are then summarised across the visited cooperatives. Although we only visited four of ten cooperatives, we believe the consistency of responses we obtained means the skills gaps we identified are likely to apply broadly across most, if not all, of the ten cooperatives (see further information on this point below).

We also visited a single commercial company supplying tree seedlings. This last visit was outside the remit of the current training needs assessment as a review of nursery seedling providers' capacities and needs is a separate part of the capacity needs assessment of the tree seed and seedling sector in Rwanda. However, we included this one commercial nursery supplier visit on an opportunistic basis. The findings from this nursery visit are not reported in the current report, but will be made available for the review of nursery seedling providers' capacities and needs (including skills gaps) that is part of the wider capacity needs assessment.

In total, we interviewed 14 cooperative members (6 women and 8 men) about skills gaps. Each cooperative is made up of more (sometimes many more) members than those we interviewed, but the members interviewed were chosen by each cooperative itself to represent them, and are expected to be aware of the skills gaps broadly within their cooperative. We also had wider group discussions as well as one-on-one interviews with the representative cooperative members within their particular cooperative groups to understand more about the context and needs of cooperatives' operations. In the case of the COTTINYA Cooperative, this further discussion brought in additional cooperative members also.

As already noted, the current assessment did not include a focus on the equipment and software needs of stakeholders in the tree seed and seedling sector, as this assessment is covered elsewhere. However, as with Tree Seed Centre staff, we did decide to seek some initial limited information from cooperative members on equipment needs during the current assessment, as there could be important skills development implications.

Detailed information on cooperative members responses to interview are not reported here, but (as for earlier interviews) these data are available from the authors (Samuel Muthemba). Again, the specific personalised information on skills gaps retained in our records from individual cooperative members are relevant for individually-targeted training. In the below, we do not assess skills gaps on a gender-differentiated basis, but again this would be possible from the individual-respondent data we have collected and retained.

Ubahiriza-Igiti Cooperative (3 members interviewed, a woman and 2 men, all members for > 10 years): The cooperative focuses on harvesting and processing seeds of *Grevillea robusta*, *Eucalyptus maidenii* (*Eucalyptus globulus* subsp. *maidenii*), *Eucalyptus globulus*, *Calliandra calothyrsus* and *Markhamia lutea*.

Interviews of cooperative members revealed seed handling, species identification, documentation, data management and reporting as important skills gaps. In order to work on new (native) tree species, species identification, seed handling and propagation skills were indicated by members to be particularly needed.

Members' current access to relevant training is indicated to be limited. Workshops and exchange visits (including with other cooperatives) were identified as important ways to meet training needs.

In terms of our early assessment of equipment needs, the cooperative members identified transport; seed collection; seed processing equipment and facilities; and seed storage facilities, as important.

All of the interviewed cooperative members are involved in training others (other cooperative members, neighbours, etc.) in seed collection and processing.

When we asked cooperative members how the Tree Seed Centre could better support their work, they indicated this could be by: facilitating access to bank loans for their activities; increasing the seed prices offered; through prompter payments for seed; and through organising training on new methods and on new species.

GEC Cooperative (3 members interviewed, 2 women and a man, all members for 4 years): The cooperative focuses on harvesting and processing seeds of *Grevillea robusta*, *Eucalyptus maidenii* and *Calliandra calothyrsus*. Interviews of cooperative members revealed seed collection, species identification, documentation (including accounting and seed source description), leadership and communication as important skills gaps. In order to work on new (native) tree species, species identification, seed handling and marketing skills (e.g., what is a fair price for the seed of a new species?) are particularly needed. Members'

current access to relevant training is limited. Workshops and exchange visits (including with other cooperatives) were identified as important ways to meet training needs.

In terms of an early assessment of equipment needs, the cooperative members identified transport; seed collection; and seed storage facilities, as important. All of the interviewed cooperative members are involved in training others (other cooperative members, neighbours, etc.) in seed collection and processing. The cooperative members considered that the Tree Seed Centre could better support their work by: offering regular training in identification and collection; facilitating access to bank loans for their activities; increasing the seed price offered; through prompter payments for seed; and through organising cooperative exchange visits.

<u>COPERWI Cooperative</u> (4 members interviewed, a woman and 3 men, members for either 2 or 3 years): The cooperative focuses on harvesting and processing seeds of *Grevillea robusta*, *Eucalyptus camaldulensis*, *Eucalyptus tereticornis*, *Senna spectabilis*, *Senna siamea*, *Gliricidia sepium*, *Markhamia lutea* and *Erythrina abyssinica*.

Interviews of cooperative members revealed seed collection, species identification, accounting, management and communication as important skills gaps. In order to work on new (native) tree species, species identification and seed handling skills are particularly needed.

Workshops and exchange visits (including with other cooperatives) were identified as important ways to meet training needs, especially for work on new tree species.

In terms of our early assessment of equipment needs, the cooperative members identified computer and internet access; transport; seed collection; seed processing facilities; and seed storage facilities, as important.

All of the interviewed cooperative members are involved in training other members in seed collection and processing.

The cooperative members considered that the Tree Seed Centre could better support their work by: engaging in regular consultation; training in identification, collection and processing; sharing knowledge resources; and providing, or facilitating access to, seed collection and processing equipment (possibly through facilitating access to bank loans).

<u>COTTINYA Cooperative</u> (4 members interviewed, 2 women and 2 men, all members for 7 years): The cooperative focuses on harvesting and processing seeds of *Acacia polyacantha* (*Senegalia polyacantha*), *Acacia kirkii* (*Vachellia kirkii*) and *Callitris robusta*.

Interviews of cooperative members revealed seed collection, seed handling, seed quality testing, documentation (including accounting) and communication as important skills gaps. In order to work on new (native) tree species, species identification and knowledge on tree physiology are particularly needed.

Members' current access to relevant training and decision-support tools is limited. Organising cooperative exchange visits was identified as one approach to meet training needs.

In terms of our early assessment of equipment needs, the cooperative members identified transport; seed collection; and computer access, as important.

Cooperative members did not indicate that they were involved in training others.

The cooperative members considered that the Tree Seed Centre could better support their work by: offering regular training in seed collection and processing; providing access to equipment for seed collection and processing, and to decision-support tools; supporting the development of seed storage facilities; facilitating access to electronic billing machines with the Rwanda Revenue Authority; prompter payments for seed; increasing the seed price offered; facilitating permissions for seed collection, where needed; and by organising the local pickup of collected tree seed or vehicle access for seed delivery to the Centre.

<u>Summary of seed cooperative findings</u>: Although the four different cooperatives we consulted occupy different contexts, their skills gaps appear to be rather similar, and for this reason we consider that the responses we have obtained are likely to be fairly representative of the cooperatives as a whole.

Species identification and seed handling (collection, processing, etc.) skills gaps are a recurring theme, especially for new (native) tree species, as are difficulties with properly documenting activities, including for seed sources. Skills gaps in managing activities and in accounting are also common. The ability to manage cooperatives and communicate with other stakeholders are also important skills gaps.

Workshops and/or other networking opportunities with other cooperatives are seen by every cooperative we spoke with as a good way of at least partially addressing skills gaps, although the fact that all the cooperatives we visited had some skills gaps in common suggests that cooperative exchanges will not in themselves be sufficient for training purposes (i.e., during exchange visits it will be important to introduce additional expertise and elements of training to address common skills gaps, rather than just have inter-cooperative discussions).

All the cooperatives we consulted have suggestions for how the Tree Seed Centre could better support their work. Common suggestions included prompter payment for seed; higher seed purchase prices; facilitating access to financing; and facilitating communication between cooperatives. In within-cooperative group discussions, cooperatives indicated that they would benefit from more frequent, regular and broader training by the Centre.

In addition, our assessment of the situation and of the particular roles that have been defined in the Rwandan tree seed and seedling sector indicate to us the need for the Centre to emphasise in its interactions with cooperatives the importance of good practice in tree seed sourcing, including in source identification, definition, documentation, collection and management. Training, happening regularly, in these areas is therefore crucial, and is reflected in our specific recommendations.

As already indicated, we consider that our findings on skills gaps for four seed cooperatives are likely to reflect the situation fairly well for all (ten) of Rwanda's seed cooperatives. However, we suggest that this point be further tested within the training activities that we have recommended in which members from different cooperative are brought together (see recommendations; see also Section 4). A part of such training event workshops should be to respond to any additional skills gaps proactively identified as part of the events.

We summarised our priority recommended actions for skills development for seed cooperative members in the four recommendations (Recommendations 10 to 13) at the start of this report.

4. Final workshop on recommendations and outstanding issues

On 26th April 2024, the training needs assessment team presented in an online workshop a draft version of the training needs assessment report and an overview of the recommendations of our assessment to Rwandan colleagues. Based on discussions in this workshop, the team edited the draft training needs assessment report, to create the final report represented by the current document. A major change we made in the final report was to present the recommendations in a table rather than the earlier-used text format, indicating timelines and follow-up responsibilities more obviously, and supporting overall clarity. A second major adjustment made in the final report was to use a more traditional format to section ordering, presenting the methods used for the assessment before the findings of the assessment (the draft report had a reverse order to place emphasis on the findings, but a number of readers found this confusing). During the 26th April workshop, any outstanding issues related to the report were also raised. The major issues identified are summarised below:

Representativeness of the seed cooperatives surveyed
In the current assessment, we interviewed members of four of ten of the seed cooperatives that collect seed for the Tree Seed Centre. During the workshop, it was pointed out that each of the ten cooperatives has 'unique' features, and some of these features will not have been captured by the current training needs assessment. While the training needs assessment team considers that many of the issues faced by all cooperatives will be in common (based on the commonality in overall responses among the visited cooperatives), this issue of uniqueness is clearly important. Our suggestion as the assessment team is that this issue be addressed further during the convening of all the seed cooperatives that we have recommended as part of Recommendation 13. We have adjusted the text of Recommendation 13 to reflect this suggestion. We consider this to be the most efficient way forward, though if Tree Seed Centre staff are for other purposes meeting with individual cooperatives not surveyed in the current assessment, then a subset of the interview questions used for the current assessment could be addressed to the cooperative members, to check for unique features and concordant training needs.

Representativeness of Rwanda Forestry Authority individual-staff perspectives
In the current training needs assessment, we were able to gather perspectives from a number of Rwanda Forestry Authority staff working 'outside' the Tree Seed Centre. However, further work could extend this information gathering to a broader range of such staff. This could use the same interview questions used in the current assessment. However, in the opinion of the training needs assessment team, this information capture may be of greater relevance for the topic of seedling delivery than for seed delivery (see next point.)

Skills development needs for tree seedling suppliers
In the workshop, the need to understand the skills development needs of tree nurseries was emphasised. As has been outlined in this report, this is a separate exercise from the current training needs assessment, but of course an important one. This assessment should include major stakeholders such as One Acre Fund. The assessment should include skills gaps in how nurseries access tree seed to raise seedlings, including potentially unofficial access.

Sharing of training needs assessment findings with the seed cooperatives
In the workshop we did not come to a conclusion as to how the findings of the current training needs assessment, especially the Recommendations for the seed cooperatives, should be discussed further with cooperatives, who were not represented in the 26th April meeting. However, this is an important task. If we assume that Recommendation 13 is implemented, then sharing the recommendations of the current training needs assessment, and discussing them further, could be part of the recommendation's activities. We have reflected this in the text to Recommendation 13.

Appendix 1. Persons met by the training needs assessment team for discussions

Name	Institution	Position	Where met (first meeting)	Date (first meeting)
Dr Athanase Mukuralinda	CIFOR-ICRAF	Country Leader CIFOR-ICRAF Rwanda	Kigali	22nd Nov 2023
Dr Jean Damascene Ndayambaje	CIFOR-ICRAF – TREPA	CIFOR-ICRAF TREPA Project Manager	Kigali	22nd Nov 2023
Dr Ivan Gasangwa	Rwanda Forestry Authority	Director – Forest Research Division	Kigali	22nd Nov 2023
Mr Phocas Mureramanzi	TSC, Rwanda Forestry Authority	Acting Director TSC	Huye District	23rd Nov 2023
Mr Eric Kazubwenge	TSC, Rwanda Forestry Authority	Seed Quality Assurance Officer	Huye District	23rd Nov 2023
Mr Emmanuel Niyigena	TSC, Rwanda Forestry Authority	Seed Stands and Orchards Maintenance Officer	Huye District	23rd Nov 2023
Mr Yves Shema	CIFOR-ICRAF – TREPA	Seeds Procurement Technician	Kigali	27th Nov 2023
Ms Marie-Claire Twiragijimana	CIFOR-ICRAF – TREPA	Tree Seed Nursery Technician	Kigali	27th Nov 2023
Mr Amani Rukundo	CIFOR-ICRAF – TREPA	Socio-Economics Field Technician	Kigali	27th Nov 2023
Mr Jean Claude Bambe	CIFOR-ICRAF – TREPA	Senior Field Technician	Kigali	27th Nov 2023
Mr Jeremy Ndayisenga	Ubahiriza-Igiti Cooperative	President	Gisagara District	29th Nov 2023
Mr Vedaste Mbonigara	Ubahiriza-Igiti Cooperative	Vice President	Gisagara District	29th Nov 2023
Mrs Marrie Claire Bankundiya	Ubahiriza-Igiti Cooperative	Secretary	Gisagara District	29th Nov 2023
Mr Christopher Sebareme	GEC Cooperative	Auditor	Nyaruguru District	30th Nov 2023
Mrs Vestine Kabatesi	GEC Cooperative	Vice President	Nyaruguru District	30th Nov 2023
Mrs Helena Kandemera	GEC Cooperative	Coop Advisor	Nyaruguru District	30th Nov 2023
Mr Ngendahayo Viateur	Green Smart Farm Limited	Director/Owner	Gasabo District, Kigali	1st Dec 2023
Ms Cyuzuzo Liliane	Green Smart Farm Limited	Accountant	Gasabo District, Kigali	1st Dec 2023
Mr Mbanyintwari Gaspard	Green Smart Farm Limited	Admin	Gasabo District, Kigali	1st Dec 2023
Mr Thomas Gakwavu	CIFOR-ICRAF – TREPA	Senior Agroforestry Field Technician	Kigali	4th Dec 2023
Mr Flouribert Manayabagabo	TSC, Rwanda Forestry Authority	Seed Production and Traceability Officer	Gatsibo District	5th Dec 2023
Mr Aimable Habarurema	COPERWI Cooperative	Secretary	Nyagatare District	6th Dec 2023
Mr Fidele Kanyandelwa	COPERWI Cooperative	Coop Advisor	Nyagatare District	6th Dec 2023
Mrs Aline Iragena	COPERWI Cooperative	Accountant	Nyagatare District	6th Dec 2023

Mr Habimana Jean de La Paix	COPERWI Cooperative	President	Nyagatare District	6th Dec 2023
Mr Jean Damascene	COTTINYA Cooperative	Seed collector/Member	Kirehe District	7th Dec 2023
Mrs Bonifide Murakozea	COTTINYA Cooperative	Auditor	Kirehe District	7th Dec 2023
Mr Filbert Dagimagwa	COTTINYA Cooperative	Secretary	Kirehe District	7th Dec 2023
Mrs Vestine Kanyamba	COTTINYA Cooperative	Coop Advisor	Kirehe District	7th Dec 2023
Mr Gaspard Ntabakirabose	Rwanda Forestry Authority	Entomologist Researcher	-	Input post visit
Mr Sebareze Wildebrand Sulaimani	Rwanda Forestry Authority	Forest Management Program Officer	-	Input post visit
Ms Esperance Mujawamariya	Rwanda Forestry Authority	Forest productivity and Improvement Research Technician	-	Input post visit

Appendix 2. Itinerary

Date	Time	Location	Activity
Sat 18th Nov 2023	~	Kigali	Arrival of Ian Dawson from the UK.
Sun 19th Nov 2023	~	Kigali	Arrival of Samuel Muthemba from Kenya. Initial discussions about the training needs assessment.
Mon 20th Nov 2023	~	Kigali	Drafting of training needs assessment exercises following review of the previous training needs assessment for PATSPO (Ethiopia) as a starting point.
Tue 21st Nov 2023	~	Kigali	Arrival of Moussa Ouedraogo from Burkina Faso. Refinement of training needs assessment approach.
Wed 22nd Nov 2023	8:00 AM	Kigali	Introduced training needs assessment team to Athanase Mukuralinda (Country Leader CIFOR-ICRAF Rwanda), and Jean Damascene Ndayambaje (CIFOR-ICRAF TREPA Project Manager). Initial discussion about the training needs assessment and confirmation of logistical support.
	2:00 PM	Kigali	Introduced the training needs assessment team to Dr Ivan Gasangwa (Head, Forest Research Division, RFA). Initial discussion of the training needs assessment, and of capacity needs assessment more broadly, in the context of Rwanda's update of the National Tree Reproductive Materials Strategy. Plans for developing the training needs assessment with RFA staff input and wider discussion of Tree Seed Centre needs.
Thurs 23rd Nov 2023	8:00 AM	Kigali	Left for Huye, Southern Rwanda.
	2:00 PM	Huye	Met Phocas Mureramanzi, Eric Kazubwenge and Emmanuel Niyigena (all Tree Seed Centre staff; Phocas is Acting Director) at the Tree Seed Centre (first visit) and discussed the training needs assessment exercise. Discussed the tools and approaches to be used and refined the exercise with Tree Seed Centre staff inputs.
Fri 24th Nov 2023	8:00 AM	Huye	Training needs assessment exercise with Tree Seed Centre staff – interview and observation.
Sat 25th and Sun 26th Nov 2023	~	Kigali	Travelled back to Kigali on Saturday morning. Reviewed the past week and planned the next set of activities before Ian's departure. Ian Dawson departed for the UK on Sunday evening.
Mon 27th Nov 2023	8:00 AM	Kigali	Visit to the ICRAF Office. Training needs assessment exercise with ICRAF TREPA staff.
Tue 28th Nov 2023	8:00 AM	Kigali	Left for Huye, Southern Rwanda.
	2:00 PM	Huye	Visited the Tree Seed Centre (second visit). Met with Tree Seed Centre and wider RFA staff. Continued the training needs assessment exercise. Provided staff with a skills gaps assessment questionnaire and course ranking form.
Wed 29th Nov 2023	8:00 AM	Gisagara	Visited Ubahiriza-Igiti Cooperative in Gisagara District, accompanied by Eric Kazubwenge. Met cooperative representatives/members.

			Conducted the training needs assessment interviews and further discussion. Observed the cooperative facility.
Thurs 30th Nov 2023	8:00 AM	Nyaruguru	Visited GEC Cooperative in Nyaruguru District, accompanied by Eric Kazubwenge. Met cooperative representatives/members. Conducted the training needs assessment interviews and further discussion. Observed the cooperative facility.
	2:00 PM	Huye	Headed back to Kigali.
Fri 1st Dec 2023.	8:00 AM	Kigali	Visited the Green Smart Farm Limited nursery farm in Gasabo District, Kigali, accompanied by Eric Kazubwenge. Met company owner and employees. Conducted the training needs assessment interviews and discussion. [NB: these findings are not presented in the current report.] Observed the company facility. Reviewed training needs assessment activities to date (online: Lars Graudal, plus TNA team).
Sat 2nd and Sun 3rd Dec 2023	~	Kigali	Reviewed the week and planned the next set of activities.
Mon 4th Dec 2023	8:00 AM	Kigali	Visited the ICRAF Office. Training needs assessment exercise with ICRAF TREPA staff (continued).
Tue 5th Dec 2023	8:00 AM	Kigali	Left Kigali for Gatsibo RFA Tree Seed Centre.
	2:00 PM	Gatsibo	Visited the Tree Seed Centre and nursery. Met Tree Seed Centre staff. Conducted the training needs assessment interview and discussion. Observed the Tree Seed Centre facility.
	5:00 PM	Gatsibo	Left Gatsibo district for Nyagatare District.
Wed 6th Dec 2023	8:00 AM	Nyagatare	Visited COPERWI Cooperative in Nyagatare District, accompanied by Eric Kazubwenge. Met cooperative representatives/members. Conducted the training needs assessment interviews and discussion. Observed the cooperative facility.
	3:00 PM	Nyagatare	Left Nyagatare for Kirehe District.
Thurs 7th Dec 2023	8:00 AM	Kirehe	Visited COTTINYA Cooperative in Kirehe District, accompanied by Eric Kazubwenge. Met cooperative representatives/members. Conducted the training needs assessment interviews and discussion. Observed the cooperative facility.
	3:00 PM	Kirehe	Left Kirehe for Kigali.
Fri 8th Dec 2023	8:00 AM	Kigali	Follow-up on questionnaire and feedback from participants. Review of completed training needs assessment visit and next steps for follow-up and report writing (online: training needs assessment team).
Sat 9th Dec 2023	~	Kigali	Departures of Samuel Muthemba for Kenya and Moussa Ouedraogo for Burkina Faso.

Appendix 3. Questions on training needs for staff involved in tree seed and seedling supply systems [for TSC staff and staff of similar partner institutions]

Staff name: <mark>[FREE TEXT RESPONSE]</mark>

Institution and staff position: <mark>[FREE TEXT RESPONSE]</mark>

Date and location: <mark>[FREE TEXT RESPONSE]</mark>

<mark>This questionnaire is designed for use by individuals. The questions can be asked by an interviewer, which provides scope for further clarifications and is the preferred approach, or alternatively it can be used as a 'paper' questionnaire that is filled out by the individual staff.</mark>

Introduction

The questions below are designed to establish skills gaps and key training needs for staff working in institutions that support tree seed and seedling delivery. This is so that, based on the identification of the most important skills gaps/training needs, appropriate support can be put in place to build knowledge capacity that creates more efficient tree seed and seedling delivery systems. The training needs assessment is part of a broader capacity needs assessment.

This training needs assessment is taking place as part of the TREPA project and so is concerned with the part of TREPA supporting tree seed and seedling delivery. The TREPA project is concerned with planting native tree species as well as exotic trees, with the project's ecosystem restoration objectives. TREPA is also about adapting to climate change, so the tree seed and seedling part of the project needs to take this into account too. These aspects of TREPA are reflected in the questions below.

In this questionnaire, an initial set of questions for all staff (1 to 13) is followed by further questions (14 to 17) that are more relevant for more senior staff with a broader picture of the institution's work. The first set of questions are more personal, the second set focus more on the broader picture. Which questions to ask which individual staff member is decided on a case-by-case basis.

Questions <mark>[ALL FREE TEXT RESPONSES]</mark>

1. What is your role or roles in the institution you are currently part of?

2. What work are you routinely engaged in, on a day-to-day basis?

3. How long have you worked for this institution?

4. For you <u>personally</u> (considering your specific role), what is your single most important skill or knowledge gap that means you can't play a role in tree seed and seedling delivery as effectively as you could otherwise do? [what lack of skills/training holds you back?]

5. For your single most important personal skill/knowledge gap (as identified in question 4), what do you think would be the best way to address this gap? Please be as specific as possible.

6. What locally-situated institutions, if any, could be involved in addressing your single most important personal skills/knowledge gap (see questions 4 and 5)? Please list the institutions:

7. What new skills would you need personally in order to go about supporting tree seed and seedling delivery for a <u>new</u> tree species that you/your institution has not worked on before?

8. What new skills would you need personally to properly take climate change into consideration in your work in tree seed and seedling delivery, to adapt to climate change in Rwanda?

9. What access currently do you have personally to training and knowledge resources that are relevant for your work related to tree seed and seedling delivery systems (covering all aspects including collection, storage, documentation, seed testing, planning, marketing, etc.)? Please provide examples of particular resources that you have used and for what purpose.

10. Are there particular training and knowledge resources that could build your skills personally that you know about and would like to access, but are not able to do so?

11. What kind of challenges do you face in your work in using the existing equipment you have in your institution?

12. What additional essential equipment or software would allow you to more easily meet your work responsibilities?

13. Are you involved in training others? If so, who do you train and on what subject? And what new skills would allow you to be a better trainer? Are there particular 'training of trainers' courses that you are aware of and would like to explore?

> The next questions are more relevant for more senior staff with a broader picture of the institution's work:

14. In your view, what are the two most important skills gap <u>overall</u> in your institution (that is, for the institution as a whole rather than you personally) in supporting effective tree seed and seedling delivery?

15. For each of the two most important overall skills gaps for your institution (as in question 14), what do you think would be the best way to address each gap?

16. What locally-situated institutions, if any, could be involved in addressing the most important overall skills gaps for your institution (see questions 14 and 15)? Please list the institutions and which key skills gaps they could address:

17. In your view, what are <u>overall</u> the two most important skills gaps in the tree seed and seedling delivery sector <u>as a whole</u> in Rwanda (that is, beyond your specific institution)?

Appendix 4. Questions on training needs for cooperative members involved in tree seed and seedling supply systems

Member name: [FREE TEXT RESPONSE]

Cooperative: [FREE TEXT RESPONSE]

Date and location: [FREE TEXT RESPONSE]

This questionnaire is designed for use by individuals, but it could also be used to collect 'group' information. The questions should be asked by an interviewer (rather than being filled out as a form by the respondent[s]). This 'interview' approach provides scope for giving – for the questions – and seeking – for the answers – clarifications and background where needed.

Introduction

The questions below are designed to establish skills gaps and key training needs in cooperatives carrying out tree seed supply. This is so that, based on the identification of the most important skills gaps/training needs, appropriate support can be put in place to build knowledge capacity that creates more efficient tree seed and seedling delivery systems.

Questions [ALL FREE TEXT RESPONSES]

1. What is your role or roles in the cooperative?

2. What work are you routinely engaged in, on a day-to-day basis, as part of the cooperative?

3. How long have you been part of the cooperative?

4. For you personally, what is the most important skill or knowledge gap you have that makes it difficult to carry out your work in the cooperative?

5. For this single most important personal skill or knowledge gap (as identified above), what do you think would be the best way to address the gap?

6. What locally-situated training providers, if any, could be involved in addressing your single most important personal skills or knowledge gap (see questions above)? Please list the institutions:

7. What new skills would you need personally in order to fulfil your role in the cooperative for supplying the seed of a new tree species that the cooperative has not supplied before?

8. What access currently do you have personally to training and knowledge resources that are relevant for your work as part of the cooperative? Please provide examples of particular resources that you have used and for what purpose.

9. Are there particular training and knowledge resources that could build your skills personally that you know about and would like to access, but are not able to access?

10. What kind of challenges do you face in your work in using the existing equipment you have in the cooperative?

11. What additional essential equipment or software would allow you to more easily meet your work responsibilities in the cooperative?

12. Are you involved in training others? If so, who do you train and on what subject? And what would make it easier for you to do this training?

13. How could the Tree Seed Centre better help you to do the work of the cooperative?

Appendix 5. Ranking exercise to prioritise potential training courses/activities for tree seed and seedling supply systems

Staff name(s): <mark>[FREE TEXT RESPONSE]</mark>

Institution(s) and staff position(s): <mark>[FREE TEXT RESPONSE]</mark>

Date and location: <mark>[FREE TEXT RESPONSE]</mark>

<mark>This exercise can be carried out by individuals or groups. The options can be posed by an interviewer or facilitator, which provides scope for further clarifications, or alternatively the exercise can be printed out and filled in by individual staff or staff groups. In the current case, individual staff completed a 'paper' copy of the exercise.</mark>

Introduction

In the table below is a list of potential training courses/activities that could be organised to support staff and institutions involved in tree seed and seedling delivery systems. This draft list of courses is based mostly on experiences in other locations where tree seed and seedling delivery skills enhancement has been identified to be needed, especially drawing on experiences from the PATSPO project. The list however is not exhaustive and training needs assessment may reveal other important needs that are not listed below.

The potential courses listed in the table are broken down into three categories: 'core practical activities', 'marketing and demand activities' and 'management and advanced learning activities. The 'core practical activities' courses are divided into two groups so that each group contains a roughly equal number of courses (creating 4 groups of courses in all).

For each category/group of courses/activities, in this exercise the purpose is to rank the listed courses/activities from most to least important, where a ranking of 1 is the course of highest importance. The objective of ranking courses is to 'force' participants in the exercise to choose between the courses. This is necessary when the overall resources available to implement courses are limited and so training has to be targeted.

An initial set of courses for ranking by all staff is followed by a further list of courses for ranking that are more relevant for more senior staff to rank. The initial set of courses to be ranked are for 'core practical activities' (two groups of courses), while the further list is for 'marketing and demand activities' and 'management and advanced learning activities' categories.

The TREPA project is concerned with planting native tree species as well as exotic ones, and with climate change adaptation. These facts are important to consider in ranking the courses.

<mark>[SEE TABLE OF TRAINING OPTIONS FOR RANKING ON NEXT PAGE]</mark>

Reminder: for any course group below, a ranking of '1' can only be used once, for the most important course. The next most important course should be ranked '2', etc. The four groups of courses below are to be ranked separately.

Course category and courses/activities	Rank (1 is most important)
Core practical activities I – to be ranked by everyone	Ranks from 1 to 4
1. How to identify, collect and manage tree seed sources (separate courses for TSC technicians [trainers], cooperative collectors and farmers)	Rank =
2. How to carry out operations of tree seed processing, seed storage and seed distribution	Rank =
3. How to run a seed laboratory for routine testing and research purposes	Rank =
4. How to document seed supply operations (approach to use) – for collections, seed dispatches, etc.	Rank =

Core practical activities II – to be ranked by everyone	Ranks from 1 to 3
5. How to genetically improve tree seed and seedling supply – carrying out breeding and selection activities	Rank =
6. How to design, establish and manage tree seed orchards/'mother blocks' for seed and seedling multiplication	Rank =
7. How to use computer software and the internet – basic skills and accessing useful online information	Rank =

For courses more relevant for ranking by more senior staff – please also see below:

Marketing and demand activities – more relevant for ranking by more senior staff	Ranks from 1 to 3
8. How to market tree seed supply operations – business management and development, customer relations, quality monitoring	Rank =
9. How to create tree seed supply information outputs – for informing clients on use and management, and for creating further client demand	Rank =
10. How to give good advice to clients on what trees to plant where – supporting species and location prioritisation, using online decision-support tools	Rank =

Management and advanced learning activities – more relevant for ranking by more senior staff	Ranks from 1 to 4
11. How to manage an institution involved in tree seed supply – staff support, activity planning, finances and effective resource use, dealing with the policy environment, and managing change	Rank =
12. How to undertake a tree seed and seedling sectoral assessment – understanding the sector more fully in order to develop more effective delivery systems	Rank =
13. How to design and deliver climate appropriate portfolios of tree diversity – creating seed and seedling systems that account for climate change	Rank =
14. Learning by networking – exchange visits nationally and internationally to share experiences and learn from other institutions involved in tree seed supply	Rank =

Appendix 6. 'Longlist' of training courses/activities for tree seed and seedling delivery

The table below contains training course/activity options identified to be importance for addressing skills gaps in the tree seed and seedling sector. Most of the options in the table were identified and described by Arvid Sloth and colleagues as part of a training needs assessment of PATSPO – an Ethiopian tree seed and seedling sector development project. These represent training materials, and outlines and strategies for possible training, that are already available. Additionally in the table, however, are two other courses/training options defined for the purpose of ranking priority training options for TREPA, and that relate to the development of the project's knowledge products. These last two options are to address skills gaps for seed and seedling systems in relation to climate change; and to address skills gaps in tree seed sector assessment and development. Both these topics are also important for the tree seed and seedling sector generally. PATSPO originally defined 15 training options, but we condensed these into 12 options that we consider to be a more defined and consistent set of activities aligned to sectoral needs for Rwanda (and more widely). Combined with the two extra options we defined, this created 14 training activity options in total that we explored in our training needs assessment ranking exercise (Appendix 5).

In the table below, how the 14 TREPA options of Appendix 5 relate to the 'original' PATSPO options and course groupings (For PATSPO, these groupings are "Biology and ecology"; "Tree seed procurement technical courses"; "Management courses"; and "Cross-cutting activities") is shown. Note that the order of the 'PATSPO'-related course options in the table is taken from PATSPO training needs assessment documents. We did not adopt the same order in the TREPA ranking exercise, however, as we applied a different and what we consider a more logical structure to our three training course categories than PATSPO applied to define group/category options.

To support the further development of TREPA training resources, it will be necessary to specifically align PATSPO training options to TREPA training needs. This should be done using the categories and options as we describe them in our ranking exercise (Appendix 5) as the start point, also considering the specific training needs identified in addition through the current training needs assessment. Substantial 'new' content development will be needed for the two TREPA-specific training options described below.

Training course/ activity	PATSPO-determined or TREPA-specific	Objectives and notes about the course/activity (summarised from PATSPO documentation in the case of 'PATSPO' courses/activities)	Cross-referencing to course/activity options in the TREPA ranking exercise (Appendix 5)
BIOLOGY AND ECOLOGY COURSES		These courses are mostly theory-oriented. They are targeted toward more senior Tree Seed Centre staff, tree-planting project managers and applied researchers	
Natural forest vegetation and tree species identification and distribution	PATSPO	The objective of this course it to learn about the composition, diversity and ecology of natural forests and tree populations, and to learn to be able to identify different native tree species. The purpose is to guide tree species selection; to support tree seed collection and seed distribution (what to plant,	Essential features condensed into course/activity 10: "How to give good advice to clients on what trees to plant where"

Training course/ activity	PATSPO-determined or TREPA-specific	Objectives and notes about the course/activity (summarised from PATSPO documentation in the case of 'PATSPO' courses/activities)	Cross-referencing to course/activity options in the TREPA ranking exercise (Appendix 5)
		where, and how); and to inform effective conservation. Field exercises on ecology and species identification are included. (5 days)	
Seed biology	PATSPO	The objective of this course is to gain an understanding about the structure and functions of tree seed parts. Covered are aspects of seed physiology; and how tree seeds respond to different conditions for orthodox, intermediate and recalcitrant seeds. The course deals with the biological basis of seeds and seed quality. Laboratory exercises on how to do seed research are included. (5 days)	Part of course/activity 3: "How to run a seed laboratory for routine testing and research purposes" [Logically, it makes sense for staff to learn in the same course about both routine seed testing and seed behaviour research (separate 'PATSPO' courses/activities "Seed biology" and "Seed lab operations"), in efforts to encourage applied research on diverse tree species]
TREE SEED PROCURE-MENT TECHNICAL COURSES		These courses are generally practically oriented. They are targeted toward operational Tree Seed Centre staff, and to tree seed stand managers and seed collectors broadly	
Seed source establishment, development and management	PATSPO	The objective of this course is to become capable in seed source development and management. Topics covered are natural stand seed sources; farmland seed sources; and seed orchards. Aspects of the selection, documentation, protection and establishment of tree seed sources are included. Field visits to natural seed stands, farmland sources, seed orchards/mother blocks, etc., are part of the course. Elements of the course are both theoretical and practical, and may suit Tree Seed Centre staff making operational plans. (8 days)	Split into course/activity 5: "How to genetically improve tree seed and seedling supply" and course/activity 6: "How to design, establish and manage tree seed orchards/'mother blocks' for seed and seedling multiplication" [This split is based on demand specifically for knowledge on the 'genetics' of tree improvement] The aspect of natural stand seed sources is covered by TREPA training course/activity option 1 (see immediately below)
Seed collection, transport, processing,	PATSPO	The objective of this course is to become capable of effectively managing the entire tree seed 'value chain', including collection, transport, processing,	Split into course/activity 1: "How to identify, collect and manage tree seed sources" and course/activity 2:

Training course/ activity	PATSPO-determined or TREPA-specific	Objectives and notes about the course/activity (summarised from PATSPO documentation in the case of 'PATSPO' courses/activities)	Cross-referencing to course/activity options in the TREPA ranking exercise (Appendix 5)
storage and monitoring		packaging and the distribution of tree seed. The course includes field visits/practical work to collect, transport, process, etc., seed. (7 days)	"How to carry out operations of tree seed processing, seed storage and seed distribution" [This split gives greater emphasis to seed source management within the tree seed 'value chain' than PATSPO does]
Farmers tree seed collection and practical seed processing	PATSPO	The purpose of this course is to improve farmer groups' seed collection through building awareness and skills in tree seed collection and handling. It is a very practical course, held 'on site', for community-level practitioners including collector small and medium enterprises as well as farmers. (1 day)	Part of course/activity 1: "How to identify, collect and manage tree seed sources" and course/activity 2: "How to carry out operations of tree seed processing, seed storage and seed distribution". [For Rwanda, it is the cooperative members that are the collectors of tree seed for the Tree Seed Centre. They need training at a higher 'competency' level than farmers might require in other situations, due to their pivotal role]
Seed lab operations	PATSPO	The objective of this course is to become competent in basic tree seed laboratory and seed processing operations. Topics covered are measuring moisture content; purity and seed weight determinations; seed pre-treatments; germination and vitality tests; and seed health assessments, conducted accorded to accepted standards. The course is based on practical day-to-day work done mostly in the seed laboratory, supported by theory sessions. (10 days (5 if refresher course))	Part of course/activity 3: "How to run a seed laboratory for routine testing and research purposes" [Logically, it makes sense for staff to learn in the same course about both routine seed testing and seed behaviour research (separate 'PATSPO' courses/activities "Seed biology" and "Seed lab operations"), in efforts to encourage applied research on diverse tree species]
MANAGEMENT COURSES		These courses vary in their emphasis from being more theoretical to more practical. Generally, the courses are targeted toward more senior Tree Seed Centre staff; to staff involved in the business aspects of tree seed supply; and	

Training course/ activity	PATSPO-determined or TREPA-specific	Objectives and notes about the course/activity (summarised from PATSPO documentation in the case of 'PATSPO' courses/activities)	Cross-referencing to course/activity options in the TREPA ranking exercise (Appendix 5)
		to staff involved in communication and interface with clients and the wider public	
Awareness, extension and public relations (outreach)	PATSPO	The objective of this course it to be able to produce appropriate tree seed extension and public relations materials that guide on the practicalities and importance of high-quality tree seed sourcing. Covered are materials such as leaflets on how to handle seed and grow specific trees species; and materials including social media explaining the importance to the wider public of tree seed sourcing efforts. The course includes theory on methodologies and the actual production of examples of useful practical materials on extension and broader public education, that are supportive of tree seed system development and quality tree seed use. (7 days)	Course/activity 9: "How to create tree seed supply information outputs"
Marketing and customer relations	PATSPO	The objective of this course is to learn the basics of marketing for addressing customer needs for quality tree seed services. It includes training in marketing techniques, market communication and customer service. The course includes a visit to a business to learn about how they undertake marketing and ensure good customer relations. (5 days)	Part of course/activity 8: "How to market tree seed supply operations" [Logically it makes sense to merge the separate 'PATSPO' courses/activities of "Marketing and customer relations" and "Entrepreneurship and income generation"]
'Chain of custody' seed documentation and monitoring	PATSPO	The objective of this course is to learn to be able to set up a professional 'chain of custody' and seed documentation system. This is about learning how to set up and manage a proper documentation system for seed collection, processing, storage and delivery, etc. The course involves practical IT training. (5 days)	Course/activity 4: "How to document seed supply operations"
Management, efficient implementation and cooperation (management basic level)	PATSPO	The objective of this course is to improve basic level management skills in organisations engaged in tree seed supply. The course is for managers and includes planning, effective resource use, staff motivation and the business orientation of tree seed programmes. It also covers personal development and how to take the initiative at work. (5 days)	Part of course/activity 11: "How to manage an institution involved in tree seed supply" [Logically it makes sense to merge the separate 'PATSPO' courses/activities related to organisational "Management…"]
Management and Leadership	PATSPO	The objective of this course is to improve skills on strategic management and efficient adaptation to changing conditions in the business environment of tree seed supply. The course if for senior managers and extends to a more	Part of course/activity 11: "How to manage an institution involved in tree seed supply" [Logically it makes

Training course/ activity	PATSPO-determined or TREPA-specific	Objectives and notes about the course/activity (summarised from PATSPO documentation in the case of 'PATSPO' courses/activities)	Cross-referencing to course/activity options in the TREPA ranking exercise (Appendix 5)
ll (management advanced level)		strategic level from the 'basic' management course (see above). It includes strategic decision making and managing change in the workplace. (5 days)	sense to merge the separate 'PATSPO' courses/activities related to organisational "Management…"]
PC professional 'driving licence'	PATSPO	The objective of this course it to gain a better understanding of the use of Microsoft office and internet browsers to support tree seed supply activities. The course includes practical use of Microsoft Office applications, including for creating databases for documentation purposes. It also included internet use skills so that staff are proficient in searching the internet for useful resources that support effective work and innovation. (5 days)	Course/activity 7: "How to use computer software and the internet"
Entrepreneur-ship and income generation	PATSPO	The objective of this course is to improve skills on entrepreneurship and income generation. The course includes training on how to identify business opportunities; and on how to create and respond to tree seed demand. The course is for seed centre staff and for small and medium enterprises engaged in seed supply. Selected businesses share their experiences. (5 days)	Part of course/activity 8: "How to market tree seed supply operations" [Logically it makes sense to merge the separate 'PATSPO' courses/activities of "Marketing and customer relations" and "Entrepreneurship and income generation"]
CROSS-CUTTING ACTIVITIES		These courses are targeted to more senior Tree Seed Centre staff, including senior management	
Regional study tour	PATSPO	The objective of this training is to develop better local practice through exchanging experiences and establishing partnerships with other operational tree seed programmes in the region. It involves Tree Seed Centre staff visiting other national Tree Seed Centres. The focus is on more effective tree seed delivery understood within the specific contexts of other national programmes (what is the same, what is different, and what can we learn?) (7 days)	Part of course/activity 14: "Learning by networking" [Logically it makes sense to merge the separate 'PATSPO' courses/activities of the "Regional study tour" and the "International study tour", based simply on which partnerships will be most effective for sectoral development in Rwanda]
International study tour	PATSPO	The objective of this training is to learn from other tree seed programmes internationally, at strategic and policy levels. The focus is on senior managers networking with key international institutions involved in tree seed supply. (7 days)	Part of course/activity 14: "Learning by networking" [Logically it makes sense to merge the separate 'PATSPO' courses/activities of the "Regional study tour" and the

Training course/ activity	PATSPO-determined or TREPA-specific	Objectives and notes about the course/activity (summarised from PATSPO documentation in the case of 'PATSPO' courses/activities)	Cross-referencing to course/activity options in the TREPA ranking exercise (Appendix 5)
			"International study tour", based simply on which partnerships will be most effective for sectoral development in Rwanda]
FURTHER 'STRATEGIC' COURSES		These courses are theory-oriented, with the direct applications following from the imparted knowledge. They are targeted toward more senior Tree Seed Centre staff, managers of major tree-planting projects/programmes and applied researchers with national institutions	
Tree seed and seedling sectoral assessment and development	TREPA	NEW CONTENT DEVELOPMENT ESSENTIAL. The objectives of this training are twofold. First is to understand better and be able to apply the needed methods for a sectoral assessment of the tree seed sector. Second, building on this assessment, is to be able to design and implement an effective integrated tree seed and seedling system. Training in undertaking a sectoral assessment involves learning how to understand the stakeholders involved and their current roles; learning how to assess the policy and funding environment; and finding out how to determine the current demand and supply situation, among other actions. Training in how to develop an effective integrated tree seed and seedling system involves understanding how to appropriately respond to, and direct, the policy environment; knowing how to develop effective collaborations among different stakeholders; understanding how to effectively integrate nurseries into the tree seed and seedling system; understanding how to put in place performance-based incentive measures in tree seed and seedling systems; and understanding how to develop appropriate certification/quality control standards for tree seeds and seedlings. (10 days)	Course activity 12: "How to undertake a tree seed and seedling sectoral assessment"
Designing and delivering climate appropriate portfolios of tree diversity	TREPA	NEW CONTENT DEVELOPMENT ESSENTIAL. The objective of this training is to understand how to respond to climate change in tree planting through adoption of the climate appropriate portfolios of tree diversity approach. These portfolios of tree species for planting are necessary to respond to climate change along with other challenges that tree planting helps address. The course will go through the specific steps involved in operationalizing CAPTD and their interrelationships. Steps include: to identify priority areas for tree planting, considering climate change; to check tree species distributions in current and predicted future climates (what can be planted where); to	Course activity 13: "How to design and deliver climate appropriate portfolios of tree diversity"

Training course/ activity	PATSPO-determined or TREPA-specific	Objectives and notes about the course/activity (summarised from PATSPO documentation in the case of 'PATSPO' courses/activities)	Cross-referencing to course/activity options in the TREPA ranking exercise (Appendix 5)
		consider planters' needs (what should be planted to meet these needs); to check for existing adapted tree seed and seedling sources and their suppliers; to invest in expanding tree seed and seedling systems, and to know how to measure impact in terms of climate mitigation and other benefits; to provide support to properly plant and manage selected trees species with reference to changing environments; and to monitor progress and provide feedback in order to refine portfolio definition and implementation.	

Supporting Information 1. Terms of Reference for the training needs assessment

Transforming Eastern Province through Adaptation (TREPA) 2021-2027

Output 3.3 Seed and seedling supply systems are enhanced to provide diverse climate adapted species and varieties 2022-2027

TERMS OF REFERENCE

Consultancy/ICRAF staff task on training needs assessment for the national tree seed sector (Part 1) Nov-Dec 2023.

1. INTRODUCTION/BACKGROUND

General

Transforming Eastern Province through Adaptation (TREPA) is a GCF supported project for the Eastern Province of Rwanda, 2021-2027 (https://www.greenclimate.fund/project/fp167).

IUCN is the Accredited Entity (AE) of the project. The focal Ministry for the project is the Ministry of Environment (MoE) through Rwanda Forestry Authority (RFA).

The project operates in three components:

Component 1: Restored landscapes that support climate resilient agro-ecological systems and livelihoods in Eastern Province.

Component 2**:** Climate resilient market development and supply chains incentivize public and private investments in forests, rangelands and agroforestry.

Component 3**:** Strengthening of national and local institutional capacity and cross sectoral coordination to mainstream climate resilience in land management and planning.

Details of the project can be found in the approved funding proposal (GCF fp 167, IUCN July 2021), the feasibility study behind the proposal (IUCN/Eco, vs 11, May 2021), and the IUCN – TREPA Project Operations and Procedures Manual (OPM), May 2022.

As part of **Component 3**, tree seed and seedling supply systems will be enhanced to provide diverse climate adapted species and varieties (output 3.3).

The Executive Entity (EE) of output 3.3 is Rwanda Forest Authority (RFA - https://www.rfa.rw/) and the Service Provider (SP) responsible for the Technical Assistance (TA) is ICRAF with support from the University of Copenhagen. ICRAF reports to IUCN and RFA in accordance with a sub-agreement between IUCN and ICRAF.

The ICRAF consultant for this assignment is Moussa Ouedraogo, who will be supported by ICRAF senior scientist Ian Dawson, training technician Samuel Muthemba and the Output 3.3 TREPA team in Rwanda (from ICRAF and RFA).

Tree Seed Systems: Output 3.3 Seed and seedling supply systems are enhanced to provide diverse climate adapted species and varieties

The overall objective of output 3.3 is to design and establish a national-level program to improve the seed and seedling supply system and promote climate adaptation through access to high quality and climate resilient planting material.

This intervention will address the limited knowledge and access of climate-resilient planting materials adapted to future climate scenarios used in agroforestry, forestry and horticulture. It will further focus on improving the currently inadequate consideration of farmers' knowledge of local tree diversity in planning and decision making for tree planting.

Additionally, the interventions will improve the limited institutional knowledge and capacity for management of climate resilient planting material. The intervention aims to design and establish a national-level program for up to 25 climate resilient priority species of fruit, food, fodder and timber species to improve the seed and seedling supply system and promote climate adaptation through access to high quality and climate resilient planting material. To enable this, output 3.3 will also i) strengthen climate change aspects in sector-specific policies and legal frameworks ii) generate climate informed maps and an information portal for habitat suitability for up to 100 climate resilient tree and crop species, and iii) enhance capacities of multi-agency working groups on seed-seedlings and climate adaptation through workshops and training. This intervention will also improve the capacity of local entities to supply germplasm for native and resilient wood tree species from local sources. Additionally, it will increase the diversity of fruit germplasm (e.g. avocado, mango, tree tomato, macadamia, pawpaw, guava) suited to the agroecological zones in the Eastern Province. In parallel, the project will encourage the private sector through the creation of collaboration platforms for state and non-state actors such as the District NGO coordination board and Joint Sector Working Groups. The project will develop incentives and develop business models for local fruit nursery accreditation systems to produce the 'right materials for the right place' and avoid pest and disease problems due to prolonged drought periods.

Specific activity areas under this Output include the following:

- **3.3.1** Integrate climate change aspects in policies and strategies for the seed sector and develop business models to promote climate resilient varieties
- **3.3.2** Prepare climate informed maps and information portal for habitat suitability for up to 100 climate resilient tree and crop species in Rwanda
- **3.3.3** Design and establish a national-level breeding programme for up to 25 climate resilient priority species of fruit, food, fodder and timber species
- **3.3.4** Conduct 12 trainings for six multi-agency working groups on seed-seedlings and climate adaptation

More information can be found in the Implementation Plan for Output 3.3 2022-2027 (version of March 2023) and the annual work plan for 2023.

This task is to be performed under activity area 3.3.4 listed above

2. <u>OBJECTIVE OF THE CONSULTANCY/TASK</u>

The purpose of the consultancy/task is:

Technical and managerial qualifications of tree seed centre staff members (1st Priority) and of major stakeholders (2nd Priority) upgraded, leading to a well-functioning tree seed sector providing larger quantities of quality seed in support of forest landscape restoration and other tree planting efforts in the country.

3. <u>METHOD OF WORK</u>

The consultant/ICRAF staff and staff of TREPA in Rwanda working with output 3.3 (specifically the Field Manager, the Tree Improvement Technician, the Seed Procurement

Technician, the Nursery Technician and RFA staff of the tree seed centres in Gatsibo and Huey) will work as a team following these TOR and guidance from the Output 3.3 management team.

A briefing meeting will be held with the relevant TREPA staff in the beginning of the consultancy/task, where the TOR will be further discussed and agreed upon. The consultant will perform the work as a member of the technical TREPA team and participate in meetings, field visits, etc. as any other employed TREPA staff.

The consultancy is Part 1 of three, where Part 2 will focus on Training plans and Training providers, and Part 3 will be follow-up on Part 1 and 2 with assessment of deliverables of Training providers, update of training plans, Training Strategy and recommendations for outcome assessment.

Part 1 will be of 4-5 weeks duration. While in the country, the consultant and associated resource persons will visit the tree seed centres and the major stakeholders identified and selected for targeted training and capacity building. Structured Interviews will take place, relevant training identified and described in terms of possible courses and materials.

4.   OUTPUTS

The following outputs will be produced:

- A Training Needs Report outlining the type and level of technical courses required to support the key staff categories of the major stakeholders better fulfilling their tasks and responsibilities. The report will be based on and a summarized assessment of all individual key staff's requirements.
- A short description of the identified courses to be developed, prepared and implemented by the project and for outsourcing to national institutions.
- A general presentation of what training material to be developed for the individual courses.
- Recommendations for a draft Training strategy, including monitoring of outcomes.

5.   ACTIVITIES

The consultants will, in collaboration with and acting as a member of the technical TREPA output 3.3 team, participate in the following tasks during her/his stay in Rwanda:

- Identify and describe the needed qualification for the key positions at main collaborating institutions (tree seed centres) and 1-2 selected major stakeholders.
- Assess if the major positions are filled and obtain information from the employees about their education and training record.
- Obtain information from the employees about possible additional qualifications needed to perform their tasks and duties.
- Assess what qualifications to add or upgrade to support the employees fulfilling their job in a better and for themselves more satisfactory manner.
- Based on the compiled information recommend and present syllabus outlines for the training and education to be included in the training component of the project.
- Prepare a list of possible training material (types and contents) to be used/developed for the training courses.
- Outline short description of training courses for the next three years (2024-2026), outsourced courses and 'in-house' courses.

6.   STAFFING AND QUALIFICATIONS

The senior consultant/staff will be Moussa Ouedraogo and Ian Dawson, who will be assisted and work together with the technical TREPA output 3.3 team (as described above in section 1 and section 3).

The consultant/staff are familiar with the technical aspects of TREPA output 3.3 and has proven expertise in the subject matter.

Dr Moussa Ouedraogo is a specialist in applied tree genetic resource management, with 20+ years of experience in tree seed centre management, tree seed delivery systems, tree breeding, conservation, training and capacity assessment. Ph.D. in Forest Genetics and Biodiversity. Former director general of the national tree seed centre in Burkina Faso.

Dr Ian Dawson, Associate Fellow of CIFOR-CRAF is Reader, scientist and writer specialised in plant genetic resources, with 20+ years of experience from 20+ countries in wider tree genetic issues, including crop domestication, teaching, training and facilitation; and developing guidelines, decision-support tools and 'seed systems' to support forest landscape restoration targets.

7.   TIMING AND DURATION OF THE ASSIGNMENT

The consultancy will be of approximately 1-month duration starting 18 November 2023 and including a 3-week stay in Rwanda.

The consultants will work from their home base (for preparation and reporting) and in Rwanda both at the TREPA/ICRAF Office in Kigali and in the field according to the final planning of the activities.

8.   REPORTING

The consultants/staff will prepare and submit:

- A short debriefing report/note, ref. appendix 1 [not attached].
- Inputs to the outputs described in section 4 based upon activities described in section 5. The consultant will prepare: i) a consolidated 'Training Need Assessment Report' with the content outlined above; ii) a list of training courses to be included in the training component and iii) a list of recommended training material to be prepared. In addition, a short debriefing report following the guidelines for debriefing (see appendix [not attached]).

The consultants will present and discuss the contents of the reports with the TREPA Output 3.3 management team before departure from Rwanda.

9.   SUPPORT FROM TREPA

TREPA will support the consultants and resource persons in organizing itineraries and meeting plans, as well as booking accommodation and domestic flights. Relevant background information will be made available. When in Kigali the consultants will work from the ICRAF Office.

ICRAF TREPA November 2023