African Forest Forum

A platform for stakeholders in African forestry

Assessment of how information shared by AFF on tree improvement and germplasm management is being used by African forestry stakeholders

Follow-up Assessment Report

About AFF

Established in 2007 as a non-political, non-governmental, objective, independent and not for profit international organisation, the African Forest Forum (AFF) is an association of individuals with a commitment to the sustainable management, wise use and conservation of Africa's forest and tree resources for the socio-economic well-being of its peoples and for the stability and improvement of its environment.

AFF exists to voice the concerns of African forestry stakeholders, and to use science, indigenous knowledge, and experience to advocate for the increasing relevance of forests and trees outside forests to peoples' livelihoods, national economies and the stability of the environment.

In this regard, AFF provides independent analysis and advice to national, regional and international institutions and actors on how economic, food security and environmental issues can be addressed through the sustainable management of forests and trees outside forests. Operationally, AFF mobilises resources to address forestry and related issues that cut across countries and different African sub-regions with a view of enhancing the relevance and contribution of forests and trees outside forests to the livelihoods of the people of Africa and stability of their environment.

Vision

The leading forum that unites all stakeholders in African forestry

Mission

To contribute to the improvement of the livelihoods of the people of Africa and the environment they live in through the sustainable management and use of tree and forest resources on the African continent.

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ASSESSMENT OF HOW INFORMATION SHARED BY AFF ON TREE IMPROVEMENT AND GERMPLASM MANAGEMENT IS BEING USED BY AFRICAN FORESTRY STAKEHOLDERS

Follow-up Assessment Report

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1. INTRODUCTION

The African Forest Forum (AFF) recognises the need to improve the practice of forestry in Africa through using good planting stock for establishment of industrial plantations, community tree woodlots and agroforests. AFF review of tree breeding and tree germplasm supply and demand in Africa indicated a declining investment in traditional tree breeding and seed production research in most countries. It was also noted that lack of skilled capacity at the national level in tree germplasm and declining investments in seed production facilities combined to widen the gap in supply and demand of good quality germplasm. Further, given an expected increase in tree planting through various national and global programmes and initiatives, like AFR100 that seeks to bring 100 million hectares of land in Africa into restoration by 2030,[1]and the recorded threats of pest and diseases to forest genetic resources in Africa, tree planting programmes in Africa might not reach optimum productivity levels if germplasm supply threats are not addressed. It is against this background that AFF sought to address the capacity gap by commissioning the development of training curricula on tree breeding and tree germplasm production that would impart this kind of knowledge to forestry practitioners and those interested in raising trees outside forests, and explore the elements for improving tree performance and productivity for a diverse range of products and in different environments.

Using this training curricula, AFF conducted training workshops in Nairobi, Kenya, between November 27th and 30th , 2017 and between February 26th and March 2nd, 2018 in Niamey, Niger, that resulted in strengthening of the capacity of 70 forestry practitioners from 31 countries in Africa for provision of quality tree germplasm to support forest establishment and agroforestry systems. In other words, they were equipped with knowledge, principles, skills and tools on best practices for quality tree seed production management. As a result of the enhanced awareness of the importance of provision of quality germplasm to support investments in forestry on the continent, the participants, on their own volition, resolved to explore how to establish two sub-regional networks (one for eastern and southern Africa, and the other for West and Central African sub-regions) of tree seed managers aimed at, among others, exchanging ideas, information and technologies on best practices to support sustainable production and exchange of quality tree planting material for more successful afforestation, reforestation and forest restoration programs in their sub-regions. The overall objective of the training workshops was to provide participants with the theoretical and practical information on present day forest tree improvement and tree germplasm management, and to promote interaction between tree seed managers and other forestry stakeholders in Africa. Ultimately the course aimed to strengthen the capacity of African governments and other stakeholders to effectively facilitate the provision and exchange of better-quality germplasm for forest and agroforests establishment.

[1] *AFR100* (the African Forest Landscape Restoration Initiative) is a country-led effort to bring 100 million hectares of land in Africa into restoration by 2030.

The expected outcomes of the training workshops were:

a) Enhanced understanding, among forestry practitioners, of the essential elements and critical factors for successful tree establishment to increase productivity of commercial and farm forests.
b) Strengthened capacity of forestry practitioners on tree seed management for provision of quality tree germplasm to support forest establishment and agroforestry systems.
c) Identified mechanisms to assist investors in tree growing activities, including small holder farmers and the private sector, to access information on good quality and better adapted germplasm for improved tree performance and productivity.
d) Established network of experts on tree improvement and seed collection for Africa.

As a follow up, AFF conducted an evaluation in 2019 to establish whether the training workshops achieved the intended results. The purpose of the evaluation was two-fold:

a) To assess the extent to which the workshops were effective in achieving the expected outcomes; and,
b) To assess the extent to which the information shared by AFF has been used in promoting sustainable forest management.

2. METHODOLOGY

The assessment adopted a descriptive research design for both quantitative and qualitative approaches to data collection and analysis and targeted 55 participants who attended the two regional workshops. A questionnaire was developed and sent to all the targeted respondents out of which 30 responded, giving a response rate of 54.55%. The assessment took a census approach in order to ensure full participation of workshop participants. The quantitative data was analyzed using SPSS and exported to Microsoft Excel to generate frequencies and percentages that were presented in tables and charts. Qualitative data was analyzed manually through thematic content techniques, presented in text and supported with verbatim quotes where necessary.

3. FINDINGS OF THE ASSESSMENT

3.1 Distribution of respondents by gender and region of origin

From a total of 30 respondents, 24 were male representing 80% of the total sampled population (Figure 1). Regarding the regional distribution of respondents, the largest number 40% (12) were from Central Africa with the least coming from South Africa (4 out of 30) as shown in Figure 2.

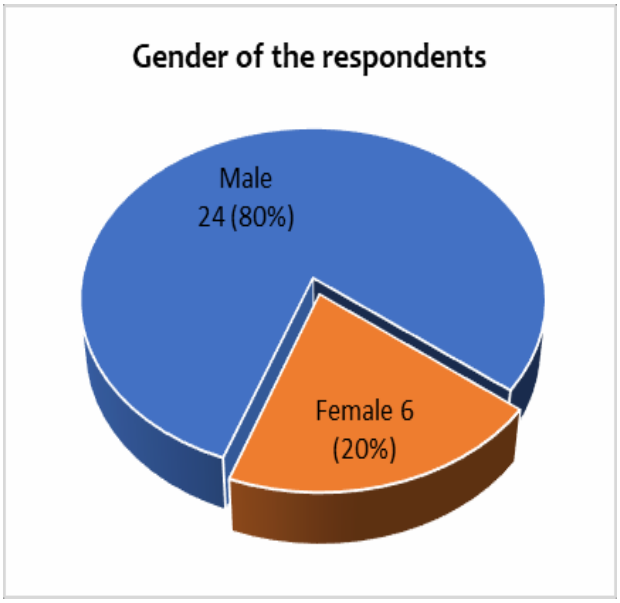

Figure 1:Distribution of the respondents by gender

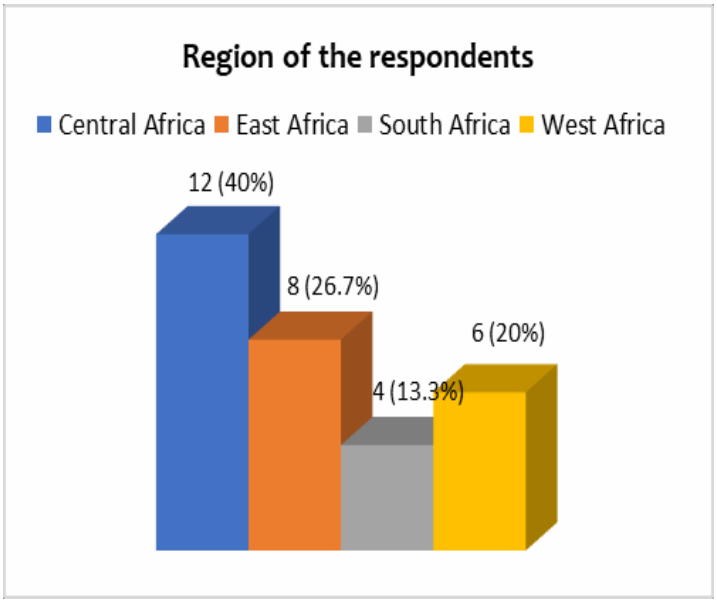

Figure 2: Distribution of the respondents by region

3.2 Change in respondents' perception on "tree improvement" resulting from the workshops

The workshop changed the perceptions of the respondents on tree improvement and this would then influence their actions. Some of the perceptions changed included relating tree improvement to the continuity of the plant community, which is in turn a better way for forest development and management to contain the effects of climate change. Others relate to improving approaches for tree improvement. Other individual specific perceptions and how some have used the knowledge gained include the following:

"Tree improvement is lowly prioritized in terms of funding especially by national governments hence very little achievements in capacity building in that area."

~Research scientist, South Africa

"It was very good and positive. My knowledge on tree improvement was enhanced. I also acquired general knowledge on how other countries are conducting their tree improvement programmes."

~Research scientist, Central Africa

"My perception changed in terms of how tree improvement is important for the continuity of the plant community. Furthermore, I understood that the tree improvement is a better way of forest management to face the effects of climate change."

~Forester and Environmentalist, South Africa

"The information shared during the workshop was very relevant to my career. At the moment, I'm in charge of a training center. The center has a modern nursery with improseedlings. We get visitors to and from outside Tanzania who come to learn from our nursery. I'm using the knowledge acquired during the workshop to explain the importance of using improved seed. Now I have a better grasp of tree improvement initiatives."

~Forester, East Africa

"Tree Improvement is gradually taking pace and in years to come it will have been revolutionized with changing innovations."

Quality Assurance Specialist, East Africa

"The training allowed me to improve my plant breeding knowledge and make relevant proposals to my country."

~Forester, West Africa

"The training allowed me to understand up-to-date techniques related to the improvement of forest tree species."

~Forester, West Africa

"The change was positive. We understood that a lot of effort is to be made concerning the supervision and the training of technicians of the forest domain."

~Forester, West Africa

"I especially understood how the situation could be variable according to the climatic contexts of Africa. The urgency of the situation as it arises in the Sudan-Sahelian zones is not identical to that of the humid dense forest zones."

~Researcher, Central Africa

3.3 Change in respondents' perception on "germplasm management" resulting from the workshops

The workshop changed the perceptions of the respondents on germplasm management and this would then influence their actions notably, in germplasm research and management of tree seed centers. Some of the individual sentiments are shared below.

"There is need to strengthen germplasm exchange programmes to build capacity of national tree seed centers. The germplasm base particularly for agroforestry is narrow and there is need to assemble new germplasm through enhanced south-south cooperation."

~Research scientist, South Africa

"Very good. Knowledge shared helped me to improve the management of the tree seed center and improve seed longevity in store."

~Research scientist, Central Africa

"I understood that the good management of germplasm material is very important to assure a good plant breeding quality."

~Forester and Environmentalist, South Africa

"Tree Germplasm has not been fully exhausted by researchers for use by the end users."

~Quality Assurance Specialist, East Africa

"The training allowed us to improve our understanding in relation to seed, plant and sustainable development."

~Forester, West Africa

"The workshop allowed me to understand that the management of the genetic material that we perform is not very consistent with the required standards."

~Forester, West Africa

"The information shared allowed me to understand that a lot of research remains to be done in the field of germplasm management in Africa."

~Researcher, Central Africa

"Positively. Indeed, I had a lot of information and technical discoveries during the workshop."

~Forester, West Africa

"The information shared mainly helped me understand the global challenges of germplasm management in a context of climate change."

~Researcher, Central Africa

3.4 Information on tree germplasm and seed management in Africa accessed from the workshop and AFF website

The assessment sought to identify the information accessed by respondents from the workshops and AFF website. Results showed that more than 80% of the respondents had accessed information on 7 out of the 9 key areas addressed at the workshops (Table 1).

Table 1: Information accessed by the respondents from the workshops and AFF website

Information accessed	Proportion (%)
Current situation on tree breeding, improvement, demand and supply	28(93.3)
Effect of climate change on tree germplasm production	30(100.0)
The linkage between tree and seed quality improvement and sustainable forest management	28(93.3)
Priority species for industrial plantations, community woodlots and agroforestry	28(93.3)
Institutional, technical and infrastructural capacity required for sustainable tree germplasm production	20(66.7)
Tree germplasm supply and distribution	24(80.0)
Seed and other germplasm deployment pathways	16(53.3)
Best practices for tree seed production management focusing on seed collection, processing, storage, and testing	28(93.3)
Enhancing cross country collaborative research on tree production	26(86.7)

In fact more than 50% of the participants accessed all information, ranging from pathways for deploying tree germplasm (53%), through enhancing collaborative research among countries on tree production (86.7%) to climate change effects on tree germplasm production (100%); thus demonstrating considerable interest in and learning on all aspects of tree germplasm.

3.5 Information on tree germplasm and seed management in Africa that was particularly important/relevant for respondents' work

The assessment sought to understand how important/relevant the information on tree germplasm and seed management was to the respondents' work. From the findings, all the respondents (i.e. 100%) found information on (i) current situation on tree breeding, improvement, demands and supply; (ii) priority species for industrial plantations, community woodlots and agroforestry and (iii) best practices for tree seed production management focusing on seed collection, processing, storage, and testing, to be particularly important to their work.

An overwhelming majority, 28 (93.3%) of the respondents found information on the linkage between tree and seed quality improvement and sustainable forest management to be useful to their work. In fact, at least 60% of all the respondents found the information listed in Table 2 to be useful to their work, with most respondents looking for information to guide production of quality tree germplasm and fewer on pathways to deploy seed and other tree germplasm.

Table 2: Respondents' perception on the relevance of AFF information to their work

Information important / relevant to respondents' work	Proportion (%)
Current situation on tree breeding, improvement, demands and supply	30(100.0)
Effect of climate change on tree germplasm production	26(86.7)
The linkage between tree and seed quality improvement and sustainable forest management	28(93.3)
Priority species for industrial plantations, community woodlots and agroforestry	30(100.0)
Institutional, technical and infrastructural capacity required for sustainable tree germplasm production	24(80.0)
Tree germplasm supply and distribution	26(86.7)
Seed and other germplasm deployment pathways	18(60.0)
Best practices for tree seed production management focusing on seed collection, processing, storage, and testing	30(100.0)
Enhancing cross country collaborative research on tree production	26(86.7)

3.6 Use of information accessed by respondents from the workshops

The respondents were asked to describe how they utilized information accessed from the two workshops they attended. Most of the respondents, 73.3%, created awareness among other stakeholders on tree germplasm and seed management. Figure 3 presents more details on the findings.

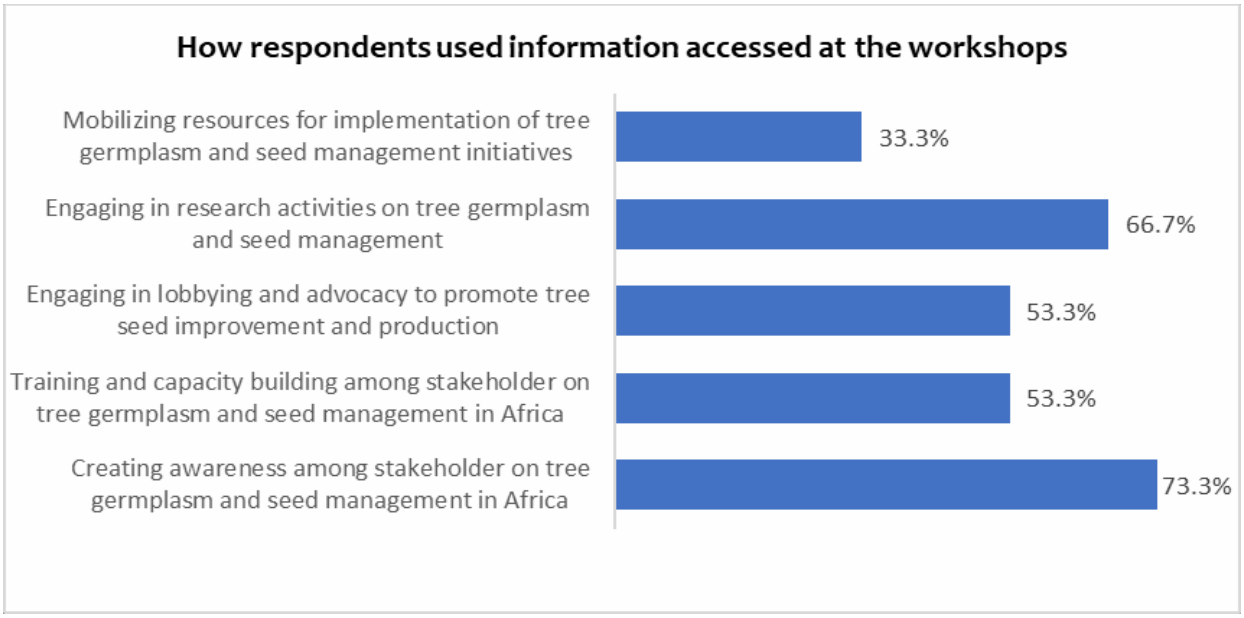

Figure 3: : How respondents used information accessed at the workshops

More than half of the respondents, 53.3%, used the knowledge and skills in conducting training and capacity building among stakeholders on tree germplasm and seed management; while a similar proportion engaged in lobbying and advocacy activities to promote tree seed improvement and production. Nearly two thirds of the respondents, 66.7%, engaged in research activities on tree germplasm and seed management.

3.7 Skills and competencies acquired by respondents on germplasm and seed management

Majority of the respondents, 73.3%, indicated that they had good capacity (knowledge and skills) to produce quality tree germplasm for their country's needs. Further, an overwhelming majority of the respondents,93.3%, rated their understanding on the essential elements and factors critical for successful tree establishment as very strong. Figure 4 presents more finding on skills and competencies acquired by respondents during the workshops and from AFF's website on germplasm and seed management.

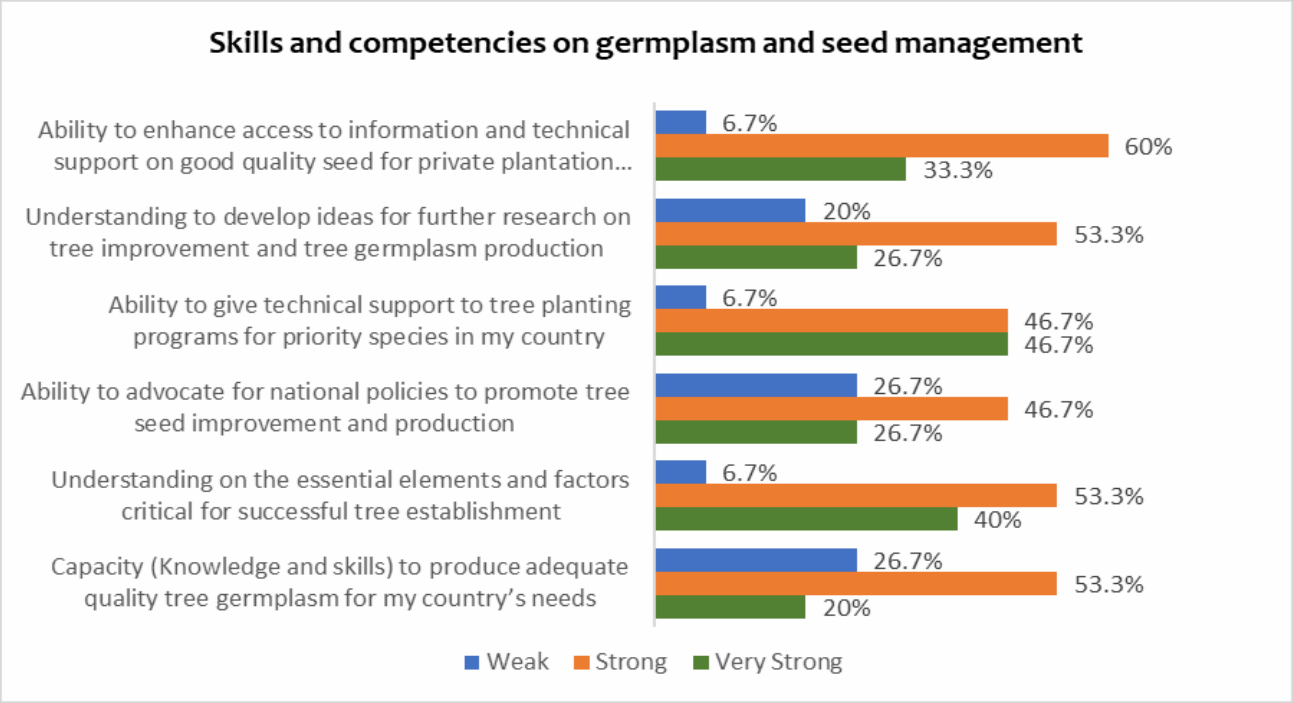

Figure 4: Skills and competencies on germplasm and seed management

However, about a quarter of the participants did not feel very adequately prepared in terms of skills and knowledge to influence national policies and produce quality germplasm for their countries.

4. CONCLUSIONS AND RECOMMENDATIONS

The study results indicate that:

1. The respondents got the necessary ideas, information, skills and other competencies to produce quality tree planting materials for uses in afforestation, reforestation and forest restoration programs in their countries.

2. A network of trained tree seed managers was established to exchange ideas, information, technologies on best practice to enhance production of quality tree germplasm.

3. Mobilization of resources for implementation of tree germplasm and seed management initiatives is still weak.

Based on the findings of the assessment, the following recommendations can be made:

1. There is need to build the capacities of more forestry practitioners from the countries in the various sub-regions to create a critical mass of people equipped with knowledge, principles, skills and tools for best practices for quality tree seed production and management.

2. There is need to strengthen resource mobilization for implementation of tree germplasm and seed management initiatives, and especially operationalization of national tree seed centres, the bulk of which have wound up.

3. There is need to pool resources at sub-regional level for developing and sharing quality tree germplasm across countries in sub-regions, while evaluating options for development of viable national tree seed centres.

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