



Provision of adequate tree seed portfolios



Norway's International  
Climate and Forest Initiative  
(NICFI)

# Proceedings stakeholder workshop

Provision of Adequate Tree Seed Portfolio  
(PATSPPO)

23 May 2018 Hilton Hotel -Addis Ababa

SPECIAL



# Proceedings

## Provision of Adequate Tree Seed Portfolio (PATSPO) Stakeholder workshop

23 May 2018

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## ABBREVIATIONS

ICRAF	International Center for Research in Agroforestry
UCPH	University of Copenhagen
WAC	World Agroforestry Center
PATSPPO	Provision of Adequate Tree Seed Portfolio for forest landscape restoration
MEFCC	Ministry of Environment, Forest and Climate Change
EFFRI	Ethiopian Environment and Forest Research Institute
AFE	Amhara Forest Enterprise
RTSCC	Regional Tree Seed Center Coordinator
RTSC	Regional Tree Seed Center
FLR	Forest Landscape Restoration
CRGE	Climate Resilient Green Economy
FAO	Food and Agricultural Organization of the UN
IUCN	International Union for Conservation of Nature
GTP	Growth and Transformation Plan
RNE	Royal Norwegian Embassy
CEEFRC	Central Ethiopia Environment and Forest Research Center
SDG	Sustainable Development Goals

## PREFACE

The present proceedings include the keynotes, the summaries of presentations and the discussions from the Provision of Adequate Tree Seed Portfolio (PATSPo) Stakeholder Workshop held on 23<sup>rd</sup> May 2018 at the Hilton Hotel, Addis Ababa.

The objective of the workshop was to present the PATSPo project and to obtain expectations, views and needs of major PATSPo-stakeholders. The proceedings will consequently be included in the continued planning and implementation of PATSPo.

The proceedings were compiled by the PATSPo-staff.

PATSPo, November 2018.

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## **1. Introduction**

### **1.1. Background**

Provision of Adequate Tree Seed Portfolios (PATSPO) to enhance productivity and resilience of Forest Landscape Restoration in Ethiopia is a project supported by a grant from the Government of Norway through the Norwegian International Climate and Forest Initiative (NICFI). The project is implemented by the World Agroforestry Centre (the International Centre for Research in Agroforestry - ICRAF) in close collaboration with the ministry of Environment, Forest and Climate Change (MEFCC), of the Government of Ethiopia and institutions working in the tree seed sector in Ethiopia. PATSPO is a four year project 2017 – 2020 based on an agreement between the Royal Norwegian Embassy in Ethiopia (RNE) and ICRAF.

PATSPO is designed to support the GoE ambitious programmes of forest landscape restoration with a commitment to restore more than 20 million ha of degraded forest landscapes within the next 20 years. The major challenge for this massive forest landscape restoration plan is shortage of quality seeds and planting materials. The tree seed sector in Ethiopia is composed of many actors and stakeholders, in order to ensure optimal implementation of the project, it is important to get involvement of the stakeholders.

### **1.2. Objective**

The objectives of this workshop are therefore:

1. To inform all stakeholders or collaborators that PATSPO has been initiated ,
2. To give highlights to stakeholders regarding the genesis of the project, its progress and deliverables
3. To gather information on key issues in the tree seed sector of Ethiopia including organizational setup of the tree seed sector, ensuring sustainability of the tree seed business, species priority for procurement, and reaction of farmers as seed suppliers and seed users.

## **2. Opening of Workshop**

### **2.1. Welcome**

Dr. Kiros M. Hadgu, Country representative for ICRAF Ethiopia office provide a welcoming address as well as introductory remarks. Following his welcoming and introductory speech, he invited to the guest of honor of the workshop, His excellency Kebede Yimam, state minister for the forestry sectors in the Ministry of Environment, Forest and Climate Change (MEFCC). Following the keynote speech by H.E. Kebede Yimam, Dr. Kiros M. Hadgu again invited Dr. Marianne Johansen, Councilor of the Norwegian Embassy for a key note speech.

### **2.2. Keynote Speeches**

#### **2.2.1. Keynote Speech of His Excellency Kebede Yimam, state minister for the forestry sector in the Ministry of Environment, Forest and Climate Change (MEFCC)**

Your Excellences;

Director Generals, Directors and Heads of Governmental and Non-Governmental Institutions; Distinguished Delegates from the Royal Norwegian Embassy, World Agroforestry Centre (ICRAF), and Development Partners;

Colleagues from National and International Research Institutions, and Government Offices and Agencies, Higher Institutions, NGOs;

Farmers;

Private Sector; and

All Protocols Observed.

Ladies and gentlemen;

I am pleased to welcome you all to this important stakeholders' workshop focusing on a four-year (2017 – 2020) collaborative project entitled 'Provision of Adequate Tree Seed Portfolios' (PATSPO) which is being implemented in Ethiopia.

Excellences, Distinguished guests, ladies and gentlemen;

As well know, Ethiopia's economy and the wellbeing of her people are closely linked mainly to sustainable use of natural resources including - but not limited to - forests, biodiversity, land and water. It is because of this that the Government of Ethiopia has clearly set relevant development policies which are supported by both long-term strategies and targeted plans including Climate



Resilient Green Economy (CRGE); the second Growth and Transformation Plan (known as GTP-II), and the restoration of 15 million ha of degraded land by 2030.

In spite of the country's excellent policies, strategies and plans; there are still major challenges including land degradation, deforestation, climate change, population pressure leading to expansion of agriculture at the expense of natural forests and declining ecosystem health which continue to pose serious problems in the country and on its people.

Ladies and gentlemen;

To address these major challenges and, thereby, achieve the development priorities of the country; the government of Ethiopia established a Ministry of Environment, Forest and Climate Change (MEFCC) which is one of the Federal institutions responsible for sustainably managing the environment and ensuring the realization of the environmental rights, goals, objectives and basic principles enshrined in the country's constitution. In addition to these, the Ministry is mandated to initiate and coordinate environmental policies, strategies, laws, standards and procedures in the country while also monitoring and enforcing their implementation through coordinating appropriate measures, establishing systems, developing programs and mechanisms for the welfare of humans and the safety of the environment. Moreover, the Ministry is responsible for the synergistic implementation and follow up of regional and international environmental agreements.

Excellences, Distinguished guests, ladies and gentlemen;

To this end, MEFCC and World Agroforestry Centre (ICRAF) designed a four-year (2017 – 2020) collaborative project: **'Provision of Adequate Tree Seed Portfolios'** (PATSPO) in Ethiopia with the support from Norway's International Climate and Forest Initiative (NICFI). To contribute towards achieving the country's priority development agenda, PATSPO is jointly implemented by MEFCC, the Ethiopian Environments and Forest Research Institute (EEFRI), University of Copenhagen, Regional Tree Seed Centres, and other partners together with ICRAF which is coordinating the project mainly due to its many years and scientific excellences globally in providing timely and relevant knowledge, proven technologies/practices, and problem solving capacities and systems related to tree, agroforestry and forestry.

With aim of improving availability of and access to quality tree seeds as well as enhancing tree seed knowledge/skills, capacities and systems in Ethiopia, PATSPO is one of the key projects which contributes towards achieving the country's ambitious commitment, such as, restoration of

more than 20 million ha of degraded landscapes within the next 20 years while also addressing some of the major challenges described in other national strategies and plans (e.g., Climate Resilient Green Economy – CRGE, and the 2<sup>nd</sup> Growth and Transformation Plan – GTP II). At the same time, PATSPO contributes through addressing some of the major issues being tackled by global, continental and regional initiatives (e.g., Forest Landscape Restoration –FLR, Sustainable Development Goals – SDGs, and Afr100).

Ladies and gentlemen;

The purpose of this workshop is, therefore, to introduce and inform the overall aim of PATSPO to the major stakeholders as well as to highlight and discuss selected tree seed issues which could be important and helpful to guide further development of the tree seed sector in Ethiopia. The workshop also focuses on (i) organizational setup of the tree seed sector; (ii) sustainability aspects of key institutions engaged in the tree seed sector; and (iii) tree species priorities important for Ethiopia's landscape restoration programmes.

Excellences, Distinguished guests, ladies and gentlemen;

I would like to say that this is an excellent opportunity for me to officially open the meeting on behalf of my Ministry. I would also like to underline that today's stakeholders' workshop is of paramount importance and very instrumental for the successful achievement of the country's development priorities but particularly to the national target of restoring more than 20 million ha of degraded landscapes within the next 20 years.

Last but not least, I would like to say thank you to all our trusted, supportive and respected donors (most importantly to the Norwegian Government), international research institutions (e.g., ICRAF), development partners, Ethiopian partners and all of you, for coming to this workshop. And, I wish to state that this meeting is now officially opened.

Thank you very much and I wish you successful deliberations.

### **2.2.2. Keynote Address by Marianne Johansen (PhD), Counselor for Climate and Forests, Royal Norwegian Embassy in Addis Ababa**

Your Excellency Mr. Kebede Yimam, State Minister of MFECC; and Distinguished guests.

Good morning!

Thank you for your gracious invitation and for engaging the Royal Norwegian Embassy in this important workshop.

Our world's tropical forests are habitat to millions of people and more than half of the planet's known flora and fauna species.

Tropical forests also render an enormous and paramount service to our planet and its inhabitants through ecosystem services such as water regulation and as a carbon sink.

In spite of the invaluable services rendered by forests, forest loss remains as one of the world's gravest challenges.

According to estimates by the UN Food and Agriculture Organization, 13 million hectares of forests were lost annually between 2000 and 2010 alone.

In recognition of this stark reality, the Government of Norway has made strong commitments to support global efforts to reduce destruction of tropical forests and halt the resulting greenhouse gas emissions.

Norway has pledged up to NOK 3 billion per year to help save tropical forests around the world while improving the livelihoods of communities who live off, in, and near the forests.

Under the leadership of the Norwegian Ministry of Climate and Environment, and in close collaboration with the Norwegian Agency for Development Cooperation (NORAD), this support is channeled through an intricate portfolio consisting of bilateral agreements with countries, large multinational organizations, and civil society.

In Ethiopia, Norway has been and continues to be a strong supporter of the country's Climate Resilient Green Economy (CRGE) strategy.

Through a bilateral agreement, made with the Government of Ethiopia, Norway has allocated more than USD 100 million to support the CRGE targets for forests.

Both the government and civil society organizations are recipients of this support

The Government of Ethiopia recognizes the important role forests play in realizing the country's green growth and development agenda.

This is both reflected in the Growth and Transformation plan and in the international commitment to the UN Climate Convention.

While protecting the existing 17 million hectares of forest, Ethiopia also intends to undertake large scale afforestation and reforestation to increase total forest cover to 30 per cent by 2030.

This ambitious restoration effort, among other things, will require the simultaneous use of diverse and vigorous tree species, as well as knowledge of the tree species' adaptability to site and climate change.

Such high demand of the planned restoration work in Ethiopia is the reason behind Norway's support to the Ethiopian tree seed sector through ICRAF's PATSPO Project.

Our hope is that this project will establish the regional seed centers as places to get high quality seeds of a variety of species and restoration purposes. Connecting the demand for seeds with supply is another important area where we trust this project will help.

No doubt, high quality tree seed of priority species are needed to meet national restoration targets.

With capable local partners as main implementers and through the support of federal and regional governments and ICRAF's experienced team, we trust that the PATSPO Project will achieve its objectives.

We are also hopeful that the achievement of the Project will significantly contribute for the success of ongoing and future forestry initiatives in the country.

I wish you all a productive and vigorous workshop and thank you very much!

### 3. Summaries of presentations

#### 3.1. Introduction to PATSPO

Major partners of PATSPO are the Ministry of Environment, Forestry and Climate Change of Ethiopia (MEFCC), Ethiopia Environment and Forest Research Institute (EEFRI) and its Tree Seed Technology Coordination Unit (TSTCU), the four regional tree seed centers (RTSCs) in Bahir Dar, Sebeta, Hawasa and Mekele; and the tree seed centre under CEEFRC.

Ethiopia planned about 20 million ha of Forest Landscape Restoration (FLR) in 20 years. The cost of planting material alone is > 3.3 billion US\$ (around 70 billion birr). Therefore the basic questions of PATSPO were what kind of support required to (1) increase the contribution of trees in FLR to CRGE (2) contribute to the landscape restoration agenda (3) enhance the mitigation and livelihood benefits (4) multiply the mitigation levels of current planted forest while enhancing adaptation (5) multiply the livelihood benefits, and (6) protect Ethiopian biodiversity.

PATASPO is designed in a way that International Technical Assistance will be obtained from ICRAF and the University of Copenhagen (UCPH), and a national network will be developed as part of the project.

The goal hierarchy of PATSPO is reaching Ethiopia's national forest restoration targets for the next 20 years and beyond. The outcome is enabling the seed sector in Ethiopia to provide high quality tree seeds of priority species for large scale restoration. The concrete outputs are (1) Efficient delivery systems through tree seed sector analysis and development (2) modernised tree seed and seedling knowledge and information systems, (3) conservation and breeding (4) Capacity building of the national tree seed sector in Ethiopia. The main activities in the first output are seed sector assessment, develop policies and strategies, and establish a **‘tree seed network’** and market intelligence and input supply systems.

Modernised tree seed and seedling knowledge and information system output will provide the knowledge and information required to establish, a national modality for conservation, improvement and utilization of tree genetic resources for **“a one stop shop for stakeholders”**, and to answer the basic question **“what to plant where”**. The main Activities are: develop Habitat Suitability maps and recommendation domains, document genetic differentiation of selected species based on field trials, genetic differentiation of selected species based on genomic studies, and develop a decision support system and interactive information portal.

Conservation and breeding or mobilising and building the tree genetic resources output will identify existing- and establish new seed production cum conservation areas. The main Activities are design a national breeding programme, undertake range wide collections of priority species, establish breeding seed orchards (BSOs); and assess, manage and use the BSOs for research, breeding and seed procurement.

Capacity building of the national and regional tree seed sector in Ethiopia is the fourth output. The major activities are upgrading and maintenance of key facilities and methods in the tree seed sector, upgrade knowledge and capabilities of selected staff at relevant stakeholder institutions; and prepare, publish and distribute training, extension and information material

Currently general capacity needs of the five regional tree seed centres (RTSC) are identified. The major ones are (1) capacity enhancement in seed processing, testing and storage (2) management and managing their seed stock and sale; (3) minor equipment and constructions needs, cold store repairs and lab furniture; (4) consistent seed documentation system from establishing seed source records to the seed is delivered to the customers, including clear identification of seed lot, (5) increasing storage capacity, and (6) budget for maintenance of equipment.

The importance of the national network of tree seed system, which is going to be developed as part of the project, was stressed. This stakeholder's workshop is mainly to support the national network. This project will be part of the international tree seed programme, which is now being re-invigorated and further strengthened with second phase of the CGIAR research programme on Forest, Trees and Agroforestry including a sub-programme dedicated to tree genetic resource.

Key message and questions to the group discussion:

1. Are we or the project in the right track?
2. Any advice from this stakeholder meeting and
3. Where should we (the project) go?

### **3.2. Organization and coordination of the tree seed sector in Ethiopia**

Organization and coordination of tree seed sector in Ethiopia addressed (1) Historical development of the tree seed sector in Ethiopia, (2) Organizations and actors in the tree seed sector/seed system in Ethiopia (3) The seed system of Ethiopia: historical trend from a single and simple supplier to many and complex system (4) Current state of seed sector (5) Institutional

responsibilities in seed production (6) What is the seed sector demanding now? (7) Roles and functions of nationally coordinating organizations in the tree seed sector.

### **Historic development**

Historically plantation programs in Ethiopia dates back to 1973/74, that demanded strong tree seed program. However, the development of formal tree seed collection and distribution was started with the establishment of the then Forestry Research Center in 1974. In 1976, the then FRC established nurseries, started seed testing and distributed seed and seedlings for free to support the forest sector. From 1994-2004, the UNDP-funded National Tree Seed Program was operating in a strengthened manner in the seed sector of the country.

In recent years, there is an increase in tree seed demand stimulated by national, regional and international policies, strategies and pledges such as Ethiopian Forest Development, Protection and Utilization proclamation (2018), CRGE (2011), GTP (2018-2022), The Bonn Challenge, the Great Green Wall Initiative, REDD+, New York Declaration on forests and CBD resulted in dramatic increase in the seed demand of the country. Accordingly, the seed system of the country has evolved from simple and centralized supplier (the then FRC) to complex and decentralized as different actors including regional seed centers, private and public enterprises came in to action.

### **Organizations and actors in the tree seed sector/seed system in Ethiopia**

Seed System is the sum of physical, organizational and institutional components, their actions and interactions, that determine seed supply and use, in quantitative and qualitative terms; include formal and informal sectors. Formal seed sector are large-scale (?), commercially organized and linearly structured seed production and supply by public or private sector with policy and regulatory support. The informal seed sector are small-scale, farmer managed traditional systems developed over time in response to farmers demand for seed including new local initiatives (CBOs, small-scale nursery owners, seed dealers). In Ethiopia the formal actors are research and public agencies, private seed companies. The informal actors are farmer seed producers, local seed exchange. The formal and informal sectors coexist and are complimentary to satisfy total requirement.

### **The seed system of Ethiopia: historical trend from a single and simple supplier to many and complex system**

The only supplier of tree seed between 1973 -1975 was the then Shoal nursery and seed distribution center. From 1994 - 2004 a UNDP supported project the National Tree Seed Project



(NTSP) was active. Between 2000 -2011 private seed supplier e.g. Eden Fields Agri -Seed Enterprise and New Abyssinia were emerging. Starting from 2012 regional trees centers including Oromia Forest and Wildlife Enterprise (OFWE)-Dimma Tree Seed Center, Amhara Forest Enterprise (AFE)- Bahir Dar Forest Seed Center, and other regional seed centers like Hawasa Tree Seed center, Forest Seed Quality Control & quarantine authority of Amhara region, CBOs, and projects including PATSPO- Project - ICRAF emerged.

### **Current State of Seed Sector**

The system changed from simple centralized to complex decentralized institutional arrangement. It has changed from single research center to several regional seed centers, from single seed provider to many actors in the seed delivery, three regional suppliers harboring many organized groups, private seed enterprises. There is critical need for coordination of policy, laws, research, seed supply to avoid risks of ‘divergence’.

### **Institutional responsibilities in seed production**

There are formal, semi-formal and informal sectors. In the informal sector the key institutions are farmers and local traders. Their roles in seed provision will be for own use and local exchange. In the semi-formal sector the key institutions are seed producer groups, seed producer cooperatives, local seed business (LSB). Their role is provision of quality declared seed. In the formal sector the major institutions are MECC, EEFRI, Public sectors (OFWE, AFE, and HSC), private sector seed companies, small scale seed enterprises, and licensed seed cooperatives and unions. Their roles will be coordination and support, technical guidance and administrative issues, establish and manage seed sources, provide quality seed, and seed certification. However, across sectors there will be overlap of roles between the informal and semi-formal as well as between the semi-formal and formal.

### **What is the seed sector demanding now?**

The seed sector needs policy related instruments (formulation and implementation- policy, proclamation, standards, certification systems, schemes). There is an Ethiopian seed law 782/2013, but it excludes tree seed.

There is a need for seed source development and management (identified, selected, provenance, orchard seed sources as the reality allows) and conservation, system related (quality assurance system, certification systems, seed transfer and phytosanitary), strong research support and provision of technologies in all aspects of the seed system, capacity building for actors



(technical, physical, financial), seed supply models (e.g. seed source owner Vs. collector, Centralized models vs. Decentralized models).

### **Roles and functions of nationally coordinating organizations in the tree seed sector.**

The role of MEFCC should be (1) monitoring, support provision and evaluation; (2) develop proclamations/ laws and standards and ensure its implementation (3) Issue Certificate of Competence and License to seed suppliers

The role of EEFRI should be (1) procure and supply quality seed of high priority native and exotic tree species (2) Identify seed sources and develop new seed sources (3) Coordination, networking and capacity strengthening

The major challenges in the tree sector are seed supply related including: limited capacity of coordinating organization, weak partnership among stakeholders, selective harvesting of good quality mother tree, inaccessibility of natural forests, no balanced seed demand and supply, lack of improved seed sources.

Policy and standard related challenges are lack of quality control system, seed source certification systems, schemes (seed source owner vs. seed collector), seed supply models (centralized vs. decentralized) are not developed.

Physical and technical capacity related challenges are shortage of seed collection, handling, testing and storage equipments and facilities, limitations in funding especially for nationally coordinating organizations, limited technical knowledge and skill

### **3.3. How to ensure sustainability of key institutions in the tree seed sector: Lesson from Amhara Forest Enterprise Tree Seed Center?**

- Forest sector provides social, economical, ecological importance by enhancing food and forest products security, contributing to energy and water resource sectors, improving agricultural productivity and serves as a means of generating income. Moreover, potential values from forest ecosystem and environmental service should not be overlooked.
- The national targets are to increase forest coverage from 15.5% to 20% by 2020 and to increase contribution of forestry to the national GDP from 4% to 8%.
- Amhara Forest Enterprise Tree Seed Center (AFETSC) is currently working with the aim of ensuring the availability of genetically suitable tree seed from selected, well-adapted and protected seed source both indigenous and exotic woody species at region and nationwide

through procurement and extension thereby ensuring customers satisfaction by providing the right product in the right place at the right time.

- Major customers are regional bureaus, woreda agriculture offices, Amhara Forest Enterprise, non government organizations, Tigray region and universities taking up 43.1%, 41.8%, 8.7%, 4.1%, 1.6% and 0.7% of the total sales, respectively.
- There is no balance between demand and supply as some of the demanded species are not being provided by the center, some are being collected but not in sufficient quantity and for some of the species, the amount in the stock is higher than the actual demand. Moreover, some species for which there is no demand has been collected and stored by the center.
- Challenges
  - ✓ Lack of facilities in branch offices
  - ✓ Lack of trained human resource and capacity building programs
  - ✓ Illegal seed suppliers and improper market competition (premium is not paid for better quality seed).
  - ✓ Germination problem in some species
  - ✓ Limited seed source and lack of intensive management
  - ✓ Poor documentation
  - ✓ Lack of seed certification system
- **The way forward**
  - ✓ Developing seed certification system
  - ✓ Capacitating the center
  - ✓ Strengthening collaboration among stakeholders
  - ✓ Improvement and domestication of industrial tree species
  - ✓ Conducting silvicultural management practices to plantations.
  - ✓ Shifting procurement competition criteria from price to quality

### **3.4. Tree species priorities in Ethiopia's landscape restoration programme**

The contexts of forest restoration are framed hierarchically in to driver, pressure, state, impact, and response. Drivers of forest restoration are demographic, economic, socio-political, technological and cultural factors. The pressures are crop cultivation, grazing, fire, harvest of tree products and urban growth. The state of forest restoration are forest area, stand density, stand structure, stand composition, density and size distribution of forest patches, connectivity of

forest patches, shape of forest patches, and between patch heterogeneity. The impacts are genetic diversity, species diversity, community diversity, productivity of forest products, carbon sequestration, hydrology and soil fertility. The response of forest restoration are natural succession, enrichment planting, direct seeding, managing secondary forests, agroforestry, mosaic of monocultures, and enhanced under storey development (IUCN, 2011).

### **Principles of forest landscape restoration**

There are five principles in forest landscape restoration according to IUCN (2011) (1) adapt to each individual ecological, socioeconomic, cultural and political context (2) a participatory process, requiring the engagement of stakeholders (3) requires monitoring programme and an appropriate learning process (4) seeks to restore ecological processes at the landscape scale that will ensure maintenance of biodiversity and ecosystem functions, and confer resilience to environmental change (5) seeks to enhance the provision of ecosystem services to humans at the landscape scale.

### **Tree species prioritization experiences**

Checklists of factors are important when identifying potential taxa seed for a plantation program (Savill and Evans 1986, White et al. 2007). The most important characteristics are planting site, taxa, and objective of planting, which affect species, seed sources and the management regime. Characteristics of the planting site include biotic factors, Soil and site, climate. Characteristics of possible taxa includes species availability, silviculture. The objective of forestation either for industrial wood, fuelwood, fodder or conservation is a relevant characteristic.

There are tree species selections for land rehabilitation exercises in Ethiopia (Reubens et al. 2011). MCDA has been employed for species ranking and selection through hierarchical model. Different results were obtained from employing Multi Criteria Tree species Selection (MCTS) and Criterium Decision Plus software (CDP) (Reubens et al. 2011). MCTS method prioritized *Dodonea angustifolia*, *Eucalyptus camaldulensis*, *Cordia africana*, *Eucalyptus globulus*, *Olea europaea*, *Acacia abyssinica*, *Acacia seyal*, *sesbania sesban* as top eight. The CDP prioritized *Cordia africana*, *Eucalyptus camaldulensis*, *Dodonea angustifolia*, *Eucalyptus globulus*, *Acacia abyssinica*, *Acacia saligna*, *Olea europaea*, *Acacia seyal* as top eight.

Other studies used tree planting niche including homestead, farmland, boundary, soil bund, plantation, and communal land, as a criteria. The top 10 species were *Cordia africana*, *Faidherbia albida*, *Moringa stenopetala*, *Sesbania sesban*, *Ehretia cymosa*, *Olea europaea*, *Grevillea robusta*, *Leucaena leucocephala*, *Grewia bicolour*, *Dodonaea viscosa*. This result gave similar result with ordination method of PCA biplot of species scores by location and niche.

### **PATSPO tree species priorities**

Top 25 species identified as priority species by the Ethiopian report of the SoW Forest Genetic Resources (FAO, 2014). Top 96 species identified as candidates for breeding. Long list of 240 species identified, which contains species identified for species distribution modeling.

The major sources of information were Ethiopia useful trees and shrubs (Bekele-Tesema 2007), species listed in the vegetationmap4africa.

Top 25 species identified as priority species by the Ethiopian report of the SoW Forest Genetic Resources (FAO, 2014) are: *Acacia drepanolobium*, *Acacia senegal*, *Adansonia digitata*, *Arundinaria alpina*, *Boswellia paprifera*, *Catha edulis*, *Coffea arabica*, *Commiphora myrrha*, *Cordeauxia edulis*, *Cordia africana*, *Cupressus lusitanica*, *Eucalyptus camaldulensis*, *Eucalyptus globulus*, *Acacia albida*, *Grevillea robusta*, *Hagenia abyssinica*, *Juniperus procera*, *Moringa stenopetala*, *Oxytenanthera abyssinica*, *Podocarpus falcatus*, *Pouteria adolfi-friederici*, *Prosopis juliflora*, *Prunus africana*, *Rhamnus prinoides*, *Tamarindus indica*, *Vitellaria paradoxa*, *Ziziphus mauritiana*. The criteria for selection has been economic value, social, gum and resin production, multipurpose, value for the lowlands, agroforestry, stimulant and medicinal, timber, threatened, beverage, construction, fuel wood, fruit production, invasiveness.

The manual of the Useful Trees and Shrubs of Ethiopia can be considered as a priority listing of useful tree species. It provides a list of species that provides a good balance between exotic and indigenous species (Bekele-Tesema 2007). List of species under distribution by CEE-FRC, Amhara Tree Seed Center, Hawassa Tree Seed Center, Dima Tree Seed Center. Information can be extracted from the vegetationmap4africa. The species are also included in the Atlas of the Potential Vegetation of Ethiopia (Friis et al. 2010)

## **Selection of species for PATSPO breeding programmes**

The criteria for selection was (1) overall demand for seed (2) farmers preference and economic benefits (3) existence of seed value chain (4) multipurpose species with weight on its suitability for Agroforestry systems (5) high biomass production to provide values for local farmers through fodder, fruit production, fast and valuable timber production (6) flowering and seed production at young ages to achieve a fast seed production and short breeding generations (7) species with high value in restoration of degraded land (8) tolerance/resistance to pests and diseases and (9) existence of enough genetic diversity and especially genetic variation at provenance- or individual-tree level.

## **Conclusion**

Forest restoration includes interventions such as enrichment planting, direct seeding, agroforestry and plantation development. This requires a wide range of species.

Tree species prioritization should be responsive to various planting site conditions and envisaged end products. Different prioritization approaches and methods can be followed and be employed by ensuring stakeholder participation. Therefore, validation of the already developed priority lists by PATSPO and other scholars in selected edaphoclimatic conditions and planting zones.

### **3.5. Tree seed a farmer's perspective**

Presenter Mrs. Tagaye shale

Timirete farmers Tree seed collector and dealer association

Dear workshop participants

First of all on behalf of members of Timrte farmers seed collector and dealer association and myself I want to say thank to this PATSPO stakeholder workshop organizers for the invitation to attend and present paper on this workshop. This is my first time to be in Addis Ababa and to attend such kind big forum.

Forestry and Environment authority of SNNP through Hawssa seed center has been introducing training for farmers specially for Gamo Gofa zone Arbaminch Beqola shara kebele on tree seed collection and handling techniques and the benefit of seed market since three years. These training

provide for farmers that tree seed which has enormous benefit and market value. As the result of training activities conducted in some rural areas to create awareness on importance and use of tree seed. Because of this intervention some farmers started to collect and sell tree seed.

With these above intervention Timert farmers tree seed collector and supplier association established in April 13, 2015 with eight men and two female farmers totally with ten members of Farmers seed collectors in South Nation, nationality and People (SNNP) region at Gamo Gofa zone Arbaminch Beqola shara kebele. The training and other support help us to improve our potential. So that our association made a fruit full work for last three years. and supplied different tree species for Hawassa tree seed center

The type of species which had been collected during these periods are : 1) *Terminalia browni* local name ( Weybeta) 2) *Cordia africana* (Wanza) 3) *Moringa stenopetala* (Alako) 4) *Cupressus lusitanica* (Yefrenje Tide) 5) *Juniperus procera* (Yabesha Tide) 6) *Acacia abyssinica* (Yabesha Gerare) 7) *Olea Africana* ( Weyra) 8) *Grevillea robusta* (ytemnja zafe)

Ladies and gentlemen

The establishment of this farmers seed collector and dealer association improve the supply of tree seed and also give an important benefit for members of the association, social community and for national economy.

#### **Benefit to association and members**

- Average income earned by the member of Timeret association engaged on seed collection activity increased and they can build their own house.
- Members can improve their life standards
- The association can deposit 200,000 ETB as capital.
- The association also can lease land for forty years.

#### **Benefit to the entire society and national economy**

- Give self- employment for youngsters and also increase their income.
- Give awareness to the community for conserving of natural resource, a forestation and avoiding of deforestation trees.

#### **Problem and challenges of the association**

- We have a huge problem with seed collection material for example ladder, safety belt, helmet etc .because of this equipments shortage seed collectors subjected to carryout collection in cultural way.
- Lack of continuous training on seed collection & handling technique for seed collectors.
- Due to lack of budget sometimes Hawssa tree seed center could not received the total seed that collected by members of association.

For example in 2016/2017 budget year Hawssa seed center could not received *Terminalia browni* 1500 kg 2) *Moringa Stenopetala* 285 kg 3) *Cordia africana* 1700 kg seed

In 2017/2018 Budget year (1) *Moringa Stenopetala* 2000 kg (2) *Terminalia broni* 5000 kg (3) *Cordia africana* 2000 kg seed.

This all resulted 19200 ETB loss for Timeret seed collector association .However even we have different challenges and problems we believe that a better tomorrow so we keep doing supplying tree seeds. And also want to notice that our association really needs PATSPO/ICRAF support.

#### **Future plan of the Timret seed collector and dealer association**

- Our association had planned to buy machine which really help as to produce blocks.
- Buying land for store uses.
- To produce and supply more tree seeds for customer.
- Increasing our employee.
- To increasing our business and make to be able more profitable.

Having said this I will like to thank to the Environment and forest authority of SNNP and Hawssa tree seed center for their moral, technical and finical support.

## 4. Panel discussion

### 4.1. Key questions raised by the participants

Questions (Mr. Lulu Likassa Royal Norwegian Embassy)

- Who are the formal and informal seed dealers and how you judge with the quality seeds?
- Why don't you collect the seeds based on the demand?
- What is your criteria of seed selection and species prioritizations?

**Comment/Suggestions/Questions (Dr. Habtemariam Kassa from CIFOR)**

- I agree the project will have a huge impact, but it will be good to learn from the agricultural tree seed system both the legal and institutional aspects. It will be also good to see the UNDP previous tree seed support.
- With regard to the legal aspect of the tree seed supply system, who takes the enforcement in terms of quality and making the contract-based production of the seeds like we heard from the farmer perspective?
- I would like to hear your plan of this project with the above issues

**Suggestions/questions (Dr. Emiru Birhane from Mekele University)**

- How the knowledge based of the tree system and what level of way you put in the project like value chain, and traceability? There is much knowledge of tree seeds in the community and how will this project use this knowledge and experience?
- The lesson presented from **Dr. Yigradu** should include the history of farmer to farmer as well as King Melilik time seed procurement
- Which one is efficient in terms of the seed supply system in Ethiopia? The formal and informal? Or farmer to farmer?
- How do you capture the farmers' requirement or perception or interest while doing the species prioritizations?
- It will be good to learn from the crop tree seed system in Ethiopia, like the failures and positive things?



### **Suggestions/questions (Dr. Agena Anjulo, Deputy Director General of Ethiopian Environment and Forest Research Institute)**

- He indicated that the project is very important for the forestry sector and agreed that there are no many tree seed suppliers. Can we go for networking and information exchange network across the country to avoid duplication of seed collection?
- Are we also looking in the tree seed disease and pests and related issues?
- Did you assess the demand and make prioritize of species from the perspective of regions, ministries, and other related agencies?
- Are you using fumigation for the collected seeds?

### **Suggestions/questions (His Excellency Ato Kebede Yimam, State Minister for Forest in MEFCC)**

- This project is now in one-year time. I am a bit worried whether the project is in a right track or not in achieving the project goals?
- “do not collect seeds which are not demanded by the farmers and communities”. He also advises as “Let’s give attention to farmers knowledge and experience. Let’s encourage farmers to do the tree seed business and support them by capacity and technical support. This was a suggestion and encouraging to the farmer who presented”.

#### **4.2. Responses from the panelists**

##### **Response from Chalie**

- We found it difficult to get the right demand from each Woreda to collect and supply the correct plan and the woredas have also faced with financial shortages unless they get fund from projects.
- The comments are valid but very difficult to get an actual plan from the woredas.
- We always use fumigation ones we collected the seeds from the field.

##### **Response from Dr. Abayneh**

- We started discussion with farmers on what species they like to plant, and we also have information with regard to seedlings availability and farmers interest in growing trees targeting market
- The work is still a working progress and we are working on it
- The formal and informal classification. We need a formal definition for these things (formal and informal) and the tree seed suppliers are established based on the demand of woredas etc.
- We have to make sure that the collected seeds should be certified and capacitate the private seed dealer and we need a platform for making things happen in a correct way.

### **Response from Lars**

- We share the concern in terms of achievements in this one year but let's see in the coming two years how things will happen.
- We have paper dealing about the crop tree seed issues where we can learn from it.
- We do have a survey now which will be considered the technical knowledge that we can get from farmers.
- How do we ensure the quality of tree seeds? One is the certification issues and that's why we are working in collaboration with the tree seed centre mainly to ensure the seed quality and related issues.

### **Response from Tagay Shale**

- I have observed that we still have capacity and skill gaps but if you support us we can contribute something important with the perspective of my cooperative.

### **Response from Dr. Yigardu**

- We are working to evaluate the quality of the seeds and we are trying to exercise to collect more information and knowledge.
- We don't have a legal proclamation about tree seeds but there is for the crop seeds.

## 5. Group work

### 5.1. Group A

#### **Organization and Coordination of the Tree Seed Sector Problems and solutions**

##### ➤ Discussion points

#### **A. Which are the Institutions at Federal, decentralize Levels in the Tree Seed Sector? What are the major Functions**

##### 1. At Federal level : MEFCC, EEFRI, EBI, ICRAF

Functions of MEFCC: Technical, Policy, Partnership and Linkage

Functions of EEFRI: - Technology Generation, Training, Partnership, seed supply

Functions of EBI: Conservation of Forest Genetics/ Seed sources, Seed import and export

Functions of ICRAF:- Germplasm Supply and Conservation, Capacity building, Project based Finance Support

##### 2. Regional Level -

- a. Public seed Centers,
- b. BOA- Input Quality and Quarantine
- c. EEFRI Centers

#### **B. How is the Private Sector Organized and Operating**

##### 1. Strength:-

- Legal and Formal
- Competent
- Employment Opportunity
- Support the Seed Shortage

##### 2. Gaps -

- Poorly organized
- Focus on Income only
- Poor Capacity and Commitment
- Poor Quality Management

- No Linkage among Private and seed Sup players
- Purchase based Seed sources – Poor Equipment and poor genetic and
- Physical quality
- Price setting based on physical inspection.
- Adulteration

**C. Is there any Coordination Modality in place in the Tree Seed Sector?**

- a. There is No Coordination Modality in the tree seed sector

**D. What are the major Problems in the Tree Seed Sector**

- a. No uniform coordination Modality
- b. Weak Quality Control
- c. Weak Certification of seed sources and seed

**E. How can they be solved?**

- a. Proclamation – Approved and Promoted
- b. - Strengthen Linkage
- c. - Capacity building of private sector
- d. - Establish certification system
- e. - Establish Seed source registry
- f. Establish mechanization systems of seed quality testing

## 5.2. Group B

How to ensure sustainability of key institutions in the tree seed sector

**A. What are the Major Sustainability (financial) Problems of seed suppliers**

Private seed dealers have shortage of capital/ budget.

- Shortage of credit/ revolving capital
- Lack of Linkage financial institutions
- Lack of Logistics
- Lack of Skill shortage of knowledge about tree seed and processing of quality seed

Public Seed dealers have financial Problems – limited budget

- Logistics

- Lack of Skill shortage of knowledge about tree seed and processing of quality seed

### **B. Is the tree seed market sufficiently big to ensure sustainable institutions**

- Market in the Public and private Sector

–Not demand driven

- Un predictable disparity b/n demand and supply
- There is big market potential but not healthy market (integration problem)
- Seed is not collected in the interest of demand

### **C. What is the role of the private seed dealers**

- Seed suppliers working for profit
- Competent to the public seed dealers
- Bring new knowledge and capital to the value chain

### **D. How are prices of tree seed being determined?**

- Based on bid
- Mutual consent

## **Recommendations**

- Value chain analysis( from seed collection to demand)
- Arrangement of financial institutions
- Improving market linkage
- Being market /demand driven seed supply/
- Price to be determined by market
- Awareness creation to be done
- Legal and policy analysis to the contests /government attention to the institution/
- Support for private sector

## **5.3. Group C**

### **Tree species priorities in Ethiopia landscape restoration programs**

#### **A. It is possible to establish a national priority list of tree species for seed procurement?**

/are regional priority list more appropriate/

- both National and Regional tree species priorities required
- National- Common priority species
- Regional –localized species

## **B. What tree species should be prioritized by RTSC at Present**

### **Amhara Region**

1. Eucalyptus globulus
2. Grevillea robusta
3. Cupressus lusitanica
4. Cordia africana
5. Acacia decurrens
6. Acacia albida

### **Oromia Region**

1. Eucalyptus globulus
2. Hyginia abisinica
3. Juniperus procera
4. Acacia saligna
5. Grevillea robusta
6. Cupressus lusitanica
7. Acacia decurrens
8. Acacia albida

### **SNNRP Region**

1. Cordia africana
2. Grevillea robusta
3. Cupressus lusitanica
4. Podocarpus Felaetos
5. Hygina abisinica
6. Prunus africana
7. Acacia albida
8. Juniperus procera
9. Acacia decurrens

### **Tigray Region**

1. Eucalyptus globulus
2. Eucalyptus camaldulesis
3. Grevillea robusta
4. Acacia albida
5. Acacia abisinica
6. Olea africana
7. Juniprus procera
8. Korewahe- Local Name –For fodder Species
9. Acacia decurences
10. Zyziphus spp.

#### **C. How do the Private Seed Dealers Decide Which Seed to Procure?**

- Both Demand and Availability determine seed Procurement of private seed dealers.

### **5.4. Group D**

#### **Seed Users Demands to the Tree Seed Sector**

##### **A. How do Tree Planters Decide What Trees to Plant?**

- He needed Purpose fuel wood, construction
- Site Suitability, Topography, Agro-ecology, Site, Soil and Water
- Species adaptability

##### **B. Can Tree Seed Users get the seed they need, Species wise and Sufficient Quantity?**

- No they can't get the Species Type they want.
- In quantity and in Quality not found as required

##### **C. Are tree users considering the quality of the seed?**

- Purity is Checked Visually
- From Government Purchase only Purchaser/ Accountant Buy the seed

##### **D. Are Tree users willing to pay more for quality seed?**

- No because most Government and NGO's Purchase for Lower Price of Different Quality.

- Users do not identify the quality seed
- E. How can tree seed users assess the quality of the seed they buy?
  - Checking Maturity
  - Physically Checking after collection
  - Selection mother trees not infested, not diseased

## 6. Home take message p

The following are some of the key take-home messages summarized by Lars Graudal following the group discussions.

1. **The need of the seeds:** there should a well understanding of the problem of the seed quality and we should empower the seed sector.
2. **Institutional issues:** There is weak quality control which also need to empower.
3. **Sustainability:** Lack of capital was mentioned in the case of sustainability; the market is not well established which need to work on it.
4. **Tree species priority:** there are different opinions and perspectives from the different groups and areas. It is well understood that the diversity is high, and the landscape is huge and thus let's see the differences as an opportunity as the country is rich with agro-ecology and diversity and we can work context specific issues where we can have different species that can address accordingly.
5. **Seed quality:** Quality was the key issues across all the groups in one way the other that we can take it as the key concluding message of this workshop.



## 7. Conclusion and recommendation

### Concluding remarks by Professor Mitiku

- The diversity of the participants is good. This is great to see such difference group.
- Let's see the power of the seed and consider as the sustainably for life. There was an event at Mekelle on Bee and honey: the good thing was every honey was marked by a single species as bees are also sustainable life etc.
- The honey festival on last Sunday was huge issues and the key concern was raised was the adulteration of honey and a question was raised about the quality control. Here today, we all were talking about the seed quality.
- The papers presented including by the female farmer were impressive where we can see the seed sector have a good attention both at the higher and lower levels. These papers are bases for further policy formulations and other studies. I would like to appreciate all the presenters.
- **Examples from Rwanda, Kenya and other African country:** they are good in quality controls of seeds and integrated within their extension system. Even they tried to give a specific name for a given as they are good in packaging and having marking. But, here we lack this all and we need to proceed to packaging with a very good quality control and traceability. These should be a responsivity of everybody.
- **The list of the priority species:** We all deal with farmers and these farmers have their own priority which is mainly linked to their livelihood. Are we really giving an attention to them and we really need to give due attention? We don't need to decide on behalf of them but let advise and show them how which trees are important as per their priorities and demands. But let's support them through action research and related issues.
- **Regional Tree Seed Centers (RTSCs):** The RTSCs should be proactive and able to deliver as we have high expectation from farmers, development organization and the government sectors.
- **The private tree seed dealer.** They are doing business and wealth accumulation. So, there is a big demand and the quality issues is another issue. But the subsidy issues should be get

attention and we need to encourage competition among dealers in any way to keep the quality.

- Policy and regulations should be also encouraged both public and private seed dealers and let's be ambassadors to have a very good quality seed. Especially the RTSC and the private seed dealers should be the key ambassadors.
- Thanks to the project who bring us all in to this room and have a discussion and interactions.
- Thanks, all participants too.

## 8. Annex I - Program

# **PATSPO Stakeholder Workshop** **Introduction to PATSPO and way ahead for the tree seed sector in Ethiopia**

**Hotel Hilton, Addis Ababa, Ethiopia**

**Wednesday 23 May 2018, 9.00 a.m. – 17.00 p.m.**

Time	Subject
	Opening and keynotes
09.00-09.30	Registration of participants
09.30-10.15	<ul style="list-style-type: none"> <li>• Welcome by Kiros Hadgu PATSPO Country Director and ICRAF Country Representative (5 min)</li> <li>• Keynote by H.E. Kebede Yimam, State Minister of Forest, MEFC (10 min)</li> <li>• Keynote by Marianne Johansen, Counselor Climate and Forest, Royal Norwegian Embassy, Addis Ababa (10 min)</li> </ul> Introduction to the programme by Soren Moestrup, PATSPO Senior Team Leader (10 min)
10.15-10.35	Coffee break
<b>Plenum presentations, incl. few Q/A</b>	
10.35-12.15	<ul style="list-style-type: none"> <li>• Introduction to PATSPO by Lars Graudal, PI PATSPO (20 min)</li> <li>• Organisation and coordination of the tree seed sector in Ethiopia by Wubalem Tadesse, Senior Researcher, EEFRI (20 min)</li> <li>• How to ensure sustainability of key institutions in the tree seed sector? Chali Byene, Amhara Tree Seed Centre (20 min)</li> <li>• Tree species priorities in Ethiopia's landscape restoration programmes by Abayneh Derero, CEEFRC (20 min)</li> <li>• Tree seed - a farmer's perspective (10 min)</li> </ul>
12.15-13.15	Lunch Break
<b>Discussions in groups</b>	
13.15-14.45	Introduction to the group discussions by Soren Moestrup (10 min) A: Organization and coordination of the tree seed sector, 2 groups B: Sustainability of the tree seed sector, 2 groups C: Tree species priorities in Ethiopia's landscape restoration programmes, 2 groups. D: Seed users' demands to the tree seed sector, 2 groups
14.45-15.15	Coffee break
<b>Plenum session, - results from group discussions</b>	
15.15-16.45	Presentation and discussion on the four components (A, B, C and D) (10 min per group)
<b>'Take home message' and closing</b>	
16.45-17.00	By Lars Graudal

## 9. Annex II Participants, working groups and discussion points

**Discussion Group A.1:** Organization and coordination of the tree seed sector – problems and solutions. Please select a chairperson and a rapporteur

### Discussion points:

- Which are the major institutions at federal, decentral levels in the tree seed sector? What are their major functions?
- How is the private sector organized and operating?
- Is there any coordination modality in place in the tree seed sector?
- What are the major problems in the tree seed sector? How can they be solved?

### Participants in Group A.1:

Mr. Daniel Yihun	Ministry of Environment, Forest and Climate Change
Mr. Kinfe Mezgebe	Tigray Agricultural Research Institute
Mr. Belete Alemayehu	Amhara Forest Enterprise, Finoteselam Branch
Dr. GemechuWirtu	Oromia Forest &Wildlife Enterprise (OFE)
Mr. Melese Mena	SNNPR Natural Resource Development
Dr. Motuma Tolera	Wondo Genet College of Forestry & Natural Resources
Dr. Marianne Johansen	Norwegian Embassy
Mr. Girma Eshte	PATSPO/ICRAF

**Discussion Group A.2:** Organization and coordination of the tree seed sector – problems and solutions. Please select a chairperson and a rapporteur

### Discussion points:

- Which are the major institutions at federal, decentral levels in the tree seed sector? What are their major functions?
- How is the private tree seed sector organized and operating?
- Is there any coordination modality in place in the tree seed sector?
- What are the major problems in the tree seed sector? How can they be solved?

### Participants in Group A.2:

Dr. Yigardu Mulatu	Ethiopian Environment & Forest Research Institute
Mr. Gebrehiwot Haile	Farmer from Tigary
Mr. Getachew Engdayehu	Amhara Bureau of Agriculture and Natural Resources
Mr. Fikru Bulita	Oromia Forest &Wildlife Enterprise, Dima Seed Center
Mr. Getahun Yakob	SNNPR Agricultural Research Institute
Dr. Emiru Birhane	Mekele University
Ms. Gelila Tesfu Zewdu	Norwegian Embassy

Mr. Yared Kebede	PATSPO/ICRAF
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**Discussion Group B.1:** How to ensure sustainability of key institutions in the tree seed sector?  
Please select a chairperson and a rapporteur

Discussion points:

- Can the Regional Tree Seed Centres (RTSC) in Hawassa, Sebeta, Bahir Dar and Mekele be sustainable in the future?
- Is the tree seed market sufficiently big to ensure sustainable institutions?
- What is the role of the private seed dealers?
- How are prices of tree seed being determined?

Participants in Group B.1:

Tefera Tadesse	Ministry of Agriculture & Livestock
Dr. Biresaw Mahitot	Amhara Forest Enterprise (AFE)
Dr. Belayneh Ayele	Amhara Environment, Forest and Wildlife Authority
Mr. Abayenh Nune	Farmer from Oromia, Bore
Mr. Mamo Gedebo	SNNPR Environment & Forest Authority
Fikre Mulugeta	Catholic Relief Service
Mrs. Hadia Seid	PATSPO/ICRAF

**Discussion Group B.2:** How to ensure sustainability of key institutions in the tree seed sector?  
Please select a chairperson and a rapporteur

Discussion points:

- Can the Regional Tree Seed Centres (RTSC) in Hawassa, Sebeta, Bahir Dar and Mekele be sustainable in the future?
- Is the tree seed market sufficiently big to ensure sustainable institutions?
- What is the role of the private seed dealers?
- How are prices of tree seed being determined?

Participants in Group B.2:

Mr. Keflom Abadi	Tigray Bureau of Agriculture & Natural Resources
Mr. Chalie Beyene	Amhara Forest Enterprise, Bahir Dar Seed Center
Mr. Alemnew Alelign	Organization for the rehabilitation of Amhara (ORDA)
Mr. Gashaw Getachew	Farmer from Oromia, Shenan
Mr. Tsegaye Horsa	Farmer from SNNPR

Mr. Kinde Rufael	Ethiopia Orthodox Church/DICAC
Dr. Abrham Abiyu	PATSPO/ICRAF

**Discussion Group C.1: Tree species priorities in Ethiopia's landscape restoration programmes.**  
Please select a chairperson and a rapporteur

Discussion points:

- Is it possible to establish a national priority list of tree species for seed procurement? Are regional priority list more appropriate?
- What tree species should be prioritized by the RTSCs at present?
- How do the private seed dealers decide which seed to procure? Demands or availability of seed?

Participants in Group C.1:

Dr. Agena Anjulo	Ethiopian Environment & Forest Research Institute
Mr. G/Michael Gidey	Farmer from Tigary
Mr. Ayitenew Endeshaw	Amhara Bureau of Agriculture and Natural Resources
Mr. Alemayehu H/ Silasse	Oromia Forest & Wildlife Enterprise, Dima Seed Center
Mr. Tsegaye Fikadu	SNNPR Tree Seed Center
Prof. Enyew Adigo	Bahir Dar University
Mr. Lulu Likassa	Norwegian embassy
Mr. Tiglu Seboka	PATSPO/ICRAF

**Discussion Group C.2: Tree species priorities in Ethiopia's landscape restoration programmes.**  
Please select a chairperson and a rapporteur

Discussion points:

- Is it possible to establish a national priority list of tree species for seed procurement? Are regional priority list more appropriate?
- What tree species should be prioritized by the RTSCs at present?
- How do the private seed dealers decide which seed to procure? Demands or availability of seed?

Participants in Group C.2:

Dr. Abayneh Derero	Ethiopian Environment & Forest Research Institute
Mr. Desta Gebremichael	Relief Society Tigray (REST)

Dr. Menale Wondie	Amhara Agricultural Research Institute
Mr. ShimelesTelila	Oromia Forest & Wildlife Enterprise, Suba branch
Prof. Mitiku Haile	Mekele University
Mr. Haile Tilahun	PATSPPO/ICRAF
Mr. Menda Desalgne	Private seed dealer from SNNPR

**Discussion Group D.1: Seed users' demands to the tree seed sector.**

Please select a chairperson and a rapporteur

Discussion points:

- How do tree planters decide what trees to plant?
- Can tree seed users get the seed they need, - species wise and in sufficient quantity?
- Are tree seed users considering the quality of the seed?
- Are tree seed users willing to pay more for quality seed?
- How can tree seed users assess the quality of the seed they buy?

Participants in Group D.1:

Mrs. Woinhareg Teklu	Ministry of Environment, Forest and Climate Change
Hiwot Desta	Tigray Bureau of Agriculture & Natural Resources
Mr. Jibril Ahimed	Amhara Forest Enterprise, Finoteselam Branch
Kes Getnet Atnafu	Farmer from Amhara
Mr. Begashaw Addisu	Private seed dealer
Mrs. Tagay Shale	Farmer from SNNPR
Mr. Tumicha Belguda	Eden Field Agri-Seed Enterprise
Mr. Niguse Hagazi	PATSPPO/ICRAF

**Discussion Group D.2: Seed users' demands to the tree seed sector. Please select a chairperson and a rapporteur.**

Discussion points:

- How do tree planters decide what trees to plant?
- Can tree seed users get the seed they need, - species wise and in sufficient quantity?
- Are tree seed users considering the quality of the seed?
- Are tree seed users willing to pay more for quality seed?
- How can tree seed users assess the quality of the seed they buy?

Participants in Group D.2:

Mr. Shimelis Tadesse	Ethiopian Environment & Forest Research Institute
Mr. Biadgilign Shiferaw	Amhara Forest Enterprise (AFE)
Mr. Amanuel T/mariyam	Private Seed dealer from Amhara
Mr. Sileshi Lema	Oromia Bureau of Agriculture & Natural Resources
Mr. Samuel Kekebo	SNNPR Environment & Forest Authority
Mr. Asfaw Mariame	World Vision Ethiopia
Dr. Kiros Hadgu	PATSPO/ICRAF











PATSPPO/ICRAF Office  
c/o ILRI Campus, Gurd  
Shola, P.O. Box 5689,  
Addis Ababa, Ethiopia

Phone: 251-116172000  
ext. 2491  
Email: K.Hadgu@cgiar.org

Website: <https://www.worldagroforestry.org/project/provision-adequate-tree-seed-portfolio-ethiopia>

