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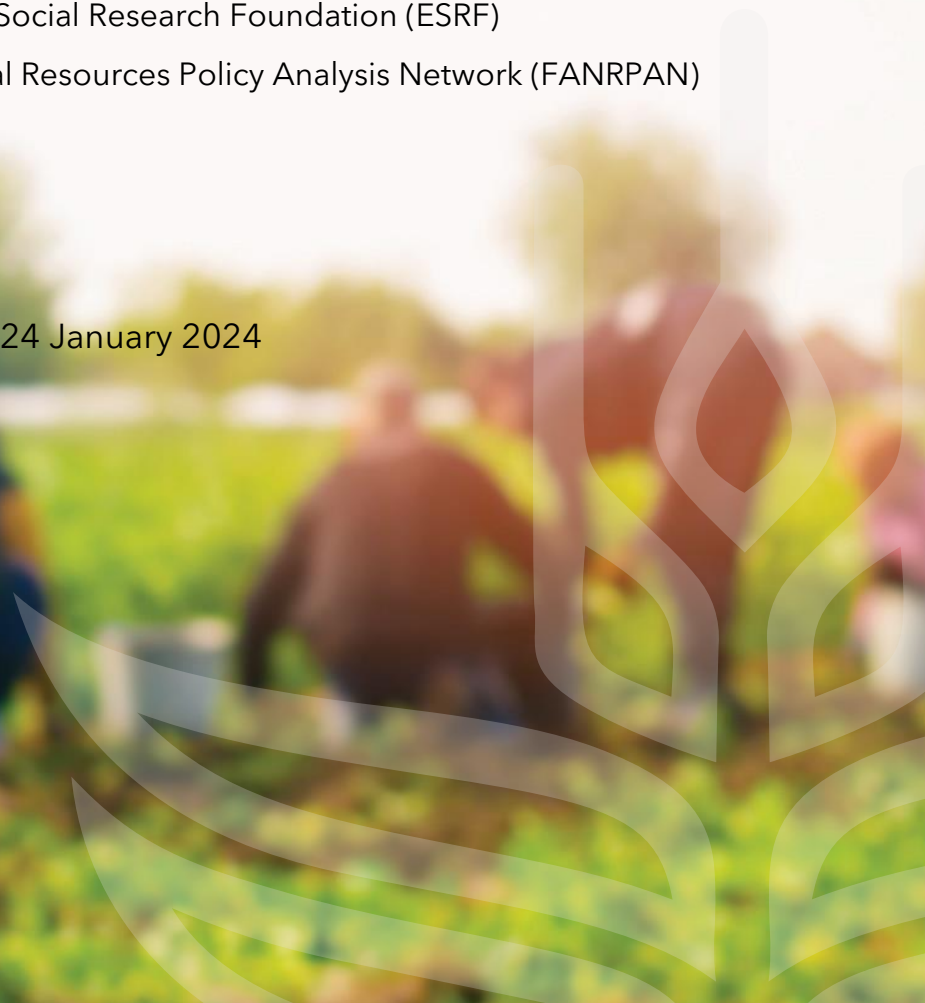
Stakeholders Inception Meeting: Tanzania Seed Sector Development Strategy (TSSDS)

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CGIAR Initiative on Diversification in East and Southern Africa

The [CGIAR Initiative on Diversification in East and Southern Africa](#), also known as [Ukama Ustawi](#) aims to help smallholders transition to sustainably intensified, diversified, and derisked agri-food systems based on maize in 12 ESA countries. Specifically, it seeks to enable 50,000 value chain actors, including farmers (at least 40% women, 40% youth), to adopt climate-smart maize-based intensification and diversification practices and one million to access digital agro-advisory services. Emphasizing the role of the private sector in driving such transformation, UU targets to support at least 60 start-ups and SMEs.

Learn more about Diversification in East and Southern Africa here:

<https://www.cgiar.org/initiative/diversification-in-esa/>

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Abbreviations

Acronyms	Definitions
ASA	Agricultural Seed Agency
ASARECA	Association for Strengthening Agricultural Research in Eastern and Central Africa
ASDP	Agricultural Sector Development Program
ASPIRES TZ	Agricultural Sector Policy and Institutional Reforms Strengthening Tanzania
DCD	Department of Crops Development
EAC	East African Community
GAP	Good Agricultural Community
IWMI	International Water Management Institute
LMOs	Living Modified Organisms
MoA	Ministry of Agriculture
NAP	National Agricultural Policy
NGOs	Non-governmental Organization
PPP	Public-Private Partnerships
QDS	Quality Declared Seed
RDL	Rational for Railways Development Levy
SADC	Southern African Development Community
SSDS	Seed Sector Development Strategy
TARI	Tanzania Agricultural Research Institute
TOSCI	Tanzania Official Seed Certification Institute
TSSDS	Tanzania Official Seed Certification Institute
UAE	United Arab Emirates
USAID	United States Agency for International Development

Executive Summary

On November 14, 2023, the Ministry of Agriculture's Department of Crops Development (DCD) convened an Inception Meeting on the Seed Sector Development Strategy (SSDS) at the Gran Melia Hotel in Arusha, Tanzania supported by USAID through the SERA BORA project and CGIAR's Ukama Ustawi initiative. Attended by a diverse array of stakeholders, the meeting aimed to initiate discussions on the SSDS, marking a crucial step towards shaping a comprehensive and impactful strategy for Tanzania's seed sector.

The meeting commenced with Professor David Nyange from the Agricultural Sector Policy and Institutional Reforms Strengthening Tanzania (ASPIRES TZ) welcoming participants and underscoring its significance as a benchmark for initiating the seed policy in Tanzania. Gratitude was extended to the Ministry of Agriculture, USAID, and CGIAR for their invaluable support and contributions. Mr. Samson Poneja, Assistant Director for DCD, emphasized the substantial role of agriculture in Tanzania and outlined challenges, stressing the need for improved seeds and a comprehensive seed strategy.

Dr. Inga Jacobs-Mata from the International Water Management Institute (IWMI) highlighted the Ukama Ustawi initiative's goal to address food and nutrition security risks, emphasizing the collaboration's importance in ensuring the availability, accessibility, and sustainability of quality seeds. Mr. Poneja, in his official opening statement, acknowledged the challenges in the agriculture sector and proposed a seed strategy focusing on availability, accessibility, utilization, and sustainability.

Professor Nyange provided insights into the seed sector's current state, emphasizing the need for strategic planning. He outlined lower crop yields in Tanzania and proposed three key factors for improvement: enhanced genetic potential through improved seeds, soil health management, and improved agronomic practices.

Dr. Idil Ires presented the Ukama Ustawi Initiative, driven by the imperative to address maize cultivation vulnerability to climate change, which is structured into six work packages. The initiative supports over 1000 farmers and 50 agro-businesses with a substantial investment of US\$100 million.

A compelling case was made for the development of the Tanzania Seed Sector Development Strategy, aligning with national policies. During group sessions, participants analyzed proposed strategies in thematic areas, including Seed Availability, Accessibility, Adoption, and Utilization. The meeting concluded with expressions of gratitude from a USAID representative and Professor Nyange, marking the official closure of the workshop.

The Inception Meeting served as a collaborative platform, bringing together key stakeholders to lay the groundwork for a strategic and sustainable transformation in Tanzania's seed sector. The shared commitment and insights provided a robust foundation for the ongoing development of the SSDS.

1. Introduction

On November 14, 2023, the Ministry of Agriculture's Department of Crops Development (DCD), with support from USAID through the SERA BORA project and CGIAR's Ukama Ustawi initiative, organized the Inception Meeting on the SSDS in Arusha, Tanzania at the Gran Melia Hotel. The goal was to kickstart discussions about the SSDS. The meeting, attended by 75 stakeholders, aimed to share early ideas about the big picture goals and key plans for the SSDS. It was a significant step in bringing together diverse perspectives and expertise to shape a thoughtful and impactful strategy for the seed sector.

Welcome Remarks

Professor David Nyange, the Policy advisor at ASPIRES TZ welcomed the participants to the meeting by emphasizing that the meeting was a benchmark for initiating the seed policy in Tanzania. He extended appreciation to the Ministry of Agriculture and co-hosts USAID and CGIAR for their invaluable support in organizing the event and their significant contributions towards the formulation of the Tanzania Seed Sector Development Strategy. He specifically acknowledged Mr. Samson Poneja, the Assistant Director for DCD, who oversees agricultural activities within the Ministry of Agriculture noting that his presence signified commitment from the Ministry at the highest level.

Prof. Nyange further highlighted significant findings of the SERA BORA initiative, a collaborative effort funded by USAID and executed by Michigan University in partnership with ASPIRES TZ. The cross-country research project assessed agricultural performance in multiple African nations, revealing a notable decline in the population's engagement in agriculture. The research, conducted in countries like Ethiopia, Tanzania, Rwanda, Kenya, and Zambia, aimed to understand the reasons behind this decline. A hypothesis was formulated and tested using national survey data, including agriculture census and national panel data. The results indicated that agricultural transformation was the key factor contributing to the diminishing population share in agriculture. For instance, the percentage of Tanzanian households primarily dependent on agriculture dropped from 85% in 2000 to 61% in 2015-2016, accompanied by an increase in farm sizes from a medium of 2 hectares to over 5 hectares.

The study also highlighted low adoption rates of productivity-enhancing technologies across the surveyed countries. In response to these findings, the Ministry of Agriculture (MoA) redirected its agricultural transformation strategy from land expansion to productivity improvement. This strategic shift involves increased budget allocation, extension staff training, provision of working equipment, and investments in seed systems, irrigation, and the fertilizer value chain. Notably, the fertilizer sector development strategy was developed in 2022/23. The MoA, through the CDC, CGIAR, and USAID are working together to establish a seed sector development strategy. These initiatives are designed to professionalize and guide farm input systems, ultimately enhancing the overall productivity of the agricultural sector.

Dr. Inga Jacobs-Mata, Director of Water, Growth, and Inclusion at IWMI, shared with participants that the Ukama Ustawi initiative aims to address food and nutrition security risks in the region arising from an overreliance on maize through a climate-resilient, water-secure, and socially inclusive approach. She highlighted that recognizing the fundamental role of improved seed varieties in this transformation, is an exciting venture for the CGIAR bringing about an opportunity for collaboration with USAID and DCD in formulating the Tanzania SSDS. She emphasized that this strategic partnership is pivotal in ensuring that quality seeds are not only available but also accessible and sustainable, laying the foundation for food security. The CGIAR is committed to providing technical support and conducting in-depth analyses to understand the impact of the Tanzania Seed Sector Development Strategy (TSSDS) on trade and productivity in Tanzania. Utilizing various policy analysis tools, Ukama Ustawi will identify the necessary infrastructure improvements required to effectively implement this strategy.

Opening Statement

Mr. Samson Poneja, Assistant Director for Agriculture, speaking on behalf of Mr. Josega Enock Chimagu, Director of Crop Development at the MoA delivered the official opening statement. He highlighted the significant role of agriculture in Tanzania, which contributes 26% to the country's GDP, meeting 100% of the country's food needs, and employing 80% of the population, a sector that is essential for reducing poverty. Despite these contributions, challenges such as limited access to agricultural inputs, low technology use, and dependence on rainfall were highlighted.

Mr. Poneja stressed the need to adopt improved seeds, fertilizers, and pesticides to boost agricultural productivity. He recognized the low adoption rates and outlined collaborative efforts with various stakeholders to address challenges. A key focus is developing a seed strategy addressing availability, accessibility, utilization, and sustainability. However, he noted a lack of clear data on seed production versus national requirements, emphasizing the importance of the proposed seed strategy. In conclusion, Mr. Poneja thanked partners like Michigan State University, CGIAR, and USAID, recognizing their significant roles in advancing Tanzania's seed sector. He appreciated the collective efforts of all partners in shaping the future of Tanzanian agriculture.

2. Overview of the Seed Sector in Tanzania

Prof. David Nyange presented an overview of the seed sector in Tanzania, emphasizing the need for strategic planning. He highlighted the lower crop yields in Tanzania compared to Sub-Saharan Africa, citing examples such as maize yields. To improve productivity, he suggested three key factors: enhancing genetic potential through improved seed, managing soil health with fertilizer and organic matter, and improving agronomic practices. In the presentation, Prof Nyange shared that despite Tanzania's food self-sufficiency for over 20 years, 9% of households still fall below the national food poverty line. Only 2.6

million hectares are planted with improved seed out of 12 million hectares farmed, limiting higher productivity due to unaffordable prices and inadequate availability of improved seed. Tanzania, however, excels in seed research and breeding activities.

He further highlighted that the seed sector faces challenges, particularly in seed importation procedures due to multiple regulatory agencies, causing delays and increased costs. Additional burdens include taxes, such as the Rationale for Railways Development Levy (RDL), and high costs imposed on breeders introducing new hybrid seeds. Incidences of pests and diseases, such as "leaf blight" and "purple blotch" in onions, along with the turnover of substandard pesticides, pose significant challenges despite government interventions in the agricultural sector. He concluded the presentation by emphasizing that addressing these challenges is crucial for the success of TSSDS forming part of the Agenda 10/30 Strategy for Agriculture Sector Transformation, aiming for seed self-sufficiency by 2030.

3. CGIAR Support to Tanzania Seed Sector Development Strategy (TSSDS)

Dr. Idil Ires from IWMI Southern Africa presented a comprehensive overview of the Ukama Ustawi Initiative. She shared that the initiative is driven by the need to address the vulnerability of maize cultivation in East and Southern Africa to climate change. Recognizing the threat to food security in Tanzania, where maize is a staple, the initiative aims to diversify food production and reduce reliance on maize. Structured into six work packages, Ukama Ustawi works around diverse aspects of agrifood systems transformations, including agribusiness acceleration, promoting conservation agriculture and adoption of improved seed varieties, and policy support. With additional funding from New Zealand, the initiative seeks to support over 1000 farmers, especially women and youth, and 50 agribusinesses, with a significant investment of US\$100 million.

She mentioned that CGIAR-IWMI will contribute to the TSSDS by providing projections on climate impact on various crops resulting from modelling work which can inform a comprehensive strategy for food diversification. Dr. Ires highlighted four pillars for food system sustainability: (i) addressing productivity gaps, (ii) eliminating nutritional deficiencies, (iii) ensuring equitable access to seeds and inputs, and (iv) considering biodiversity and the environment. She also touched on the shift from formal to modern company-controlled seeds which necessitates careful consideration.

CGIAR-IWMI focuses on the supply side, providing recommendations to enhance seed supply, competition, and quality. Dr. Ires stressed the importance of aligning the strategy with existing policies, given gaps in the legislative Seed Act of 2003. She emphasized the need to bridge the information gap on seed registration, awareness of improved varieties, and pricing transparency. Dr. Ires called for a clear regulatory role for the agriculture seed agency and encouraged active involvement of stakeholders, especially in the private sector.

4. Positioning Tanzania's Seed Sector

The TSSDS is essential for the country's current efforts to bring about improved seed self-sufficiency. It will stand to revive several approaches followed to reach the ultimate outcome. Farmers' access to inputs, especially quality seed of improved varieties, is the key to increased agricultural productivity and production. The role that enhancing smallholder farmers' access to quality seeds can play in raising the productivity of Tanzania's agriculture is highlighted in various country's strategies and policy documents, which include the Agricultural Sector Development Program (ASDP II, 2017), the National Agricultural Policy (Ministry of Agriculture, Food Security and Cooperatives , 2013), and the Kilimo Kwanza national declaration of 2009 (Global Agriculture and Food Security Program , n.d.).

Noteworthy findings from (ASARECA, 2014) underscore the diverse stakeholders in the seed sector, encompassing civil society actors, private entities, and the public sector. The public sector engages in all aspects of the seed chain, from plant genetic resource management to seed production and marketing. Conversely, the private sector focuses on producing and marketing certified seed, primarily for modern maize varieties. Given that only 5.3% of the certified seeds used in Tanzania meet farmer needs thus highlighting a significant gap.

Agro dealers play a crucial role in selling certified rice and maize seeds, while farmers, through community-based organizations, participate in contracted certified seed production, informal seed production, and Quality Declared Seed (QDS) distribution. The public sector primarily provides essential seed chain support services, with local government district agricultural offices offering extension services and the Tanzania Official Seed Certification Institute (TOSCI) providing quality inspection and certification services.

Despite the involvement of farmers' organizations and NGOs in seed extension services, there is a noted under-representation of farmers, agro-dealers, and seed companies in the National Seed Committee. This imbalance leads to challenges such as lobbying. To address these issues and others, it is necessary for the country to establish a comprehensive strategy and policy, marking the initial steps in the journey toward success.

5. Group Discussion by Thematic Areas

During the workshop, participants were divided into four groups, each assigned to analyze the relevance of the proposed strategies in achieving specific thematic areas.

5.1 Seed Availability

To improve the availability of quality seeds, members have solidly agreed on a set of proposed strategies, which include:

Strategy 1: Promote an enabling environment in seed production and trade, this is achieved through:

- **Policy Reforms:** Develop a comprehensive stand-alone policy specifically addressing seeds, with a particular focus on land ownership for investors. Implement awareness campaigns to promote understanding and adherence to regional seed protocols within the Southern African Development Community (SADC) and East African Community (EAC) for effective utilization.
- **Regulatory Reforms:** Direct Tanzania Agricultural Research Institute's (TARI's) efforts towards seeds that are not attracting interest from the private sector. Foster collaboration with private sectors to engage them in seed multiplication initiatives.
- **Registrations:** Streamline and simplify the registration process to make it more accessible and cost-effective for stakeholders involved in the seed industry.
- **Certification:** Introduce flexibility in the sourcing of services for certification labels. Initiate the certification process for pasture seeds, broadening the range of certified seeds available in the market.
- **Licensing/Authorization:** Enable government licensing and authorization for private sectors to actively contribute to quality control. Implement measures such as Good Agricultural Practices (GAP) audits and manuals to uphold high-quality standards.
- **Capacity Building:** Strengthen the capacities of various stakeholders throughout the seed supply chain to enhance the availability of seeds. Provide training and support to empower individuals involved at different stages of seed production and distribution.
- **Awareness Creation:** Implement initiatives to raise awareness about the importance of using quality seeds, particularly certified seeds, and improved varieties, emphasizing their positive impact on agricultural productivity and sustainability.

Strategy 2: Unlock challenges for private sector investors in the seed system through:

- **Land availability/ accessibility:** Ensure availability and accessibility of land for seed production by having the government allocate specific areas for this purpose.
- **Strengthen Local Capacity:** Promote local seed production to enhance self-sufficiency and reduce dependence on imports.
- **Infrastructure Development:** Invest in essential infrastructure, such as roads, irrigation, and electricity, to facilitate efficient seed production.

- **Public-Private Partnership (PPP):** Encourage private sectors to actively promote the varieties produced through effective partnerships with the government.
- **Seed Financing Guarantee Scheme:** Establish a financial guarantee scheme to support seed producers, fostering financial stability and confidence in the industry.
- **Marketing Intelligence Capacity Building:** Strengthen the capacity for marketing intelligence to enhance the understanding of market dynamics and demand for different seed varieties.
- **Logistics Improvement:** Eliminate unnecessary logistics levies, such as the cess, during seed transportation to streamline the process and reduce financial burdens on stakeholders

Strategy 3: Promote seed trade and Position Tanzania as a regional seed hub for seed production and trade. This is achieved through:

- **Joint Advocacy Strategy (PPP):** Collaborate on a comprehensive advocacy strategy with public-private partnerships to effectively promote varieties produced by the private sector.
- **Utilization of International Compliances/Standards:** Enhance awareness and adherence to international compliances and standards, ensuring that stakeholders are well-informed and aligned with global best practices.
- **PPP-Public Dialogues:** Strengthen public-private dialogues to foster effective communication and collaboration between various stakeholders involved in the seed industry.
- **Research in seed sector (Robust Data Collection and Analysis Systems):** Establish and fortify systems for collecting and analyzing data to enhance the seed systems information database, providing valuable insights for decision-making.
- **Mechanism for Seed Demand Determination:** Implement a mechanism, such as frequent market demand surveys, to accurately determine the demand for seeds and adjust production accordingly.
- **Seed Packages:** Investigate and develop seed packages that cater to diverse agricultural needs, promoting a wider range of options for farmers.
- **Strengthened Agro-dealers associations (TANADA, TADCOS) and Seed Trade Association (TASTA):**
- Build the capacity of agro-dealers and farmers associations by providing support in areas such as finance, linkages, and overall capacity building to facilitate efficient seed trade.

- **Price Controls:** Formalize dealership arrangements with distributors, establishing clear price controls to ensure fair and transparent transactions within the seed market.

Strategy 4: leverage on innovative financing mechanisms for investment in seed production and trade. This is achieved by:

- **Establishment of Seed Financing Guarantee Scheme:** Set up a scheme to guarantee financing for seed production and multiplication, ensuring a reliable source of funds.
- **Allocation of Funds for Seed Production and Multiplication:** Devote specific funds to support the production and multiplication of seeds, providing financial resources for this crucial aspect of agriculture.
- **Catalyze Private Sector Investments:** Encourage and stimulate private sector investments in seed production and multiplication, fostering collaboration between the public and private sectors.
- **Fast Track/Enforce Allocation of Funds:** Expedite and enforce the allocation of funds for re-investments in seed production and multiplication, utilizing revenues generated from agricultural activities.
- **Knowledge of Available Financing Opportunities:** Enhance awareness and understanding of financing opportunities, particularly for agro dealers, ensuring they are well-informed about the various financial resources available to support their operations in the seed industry

Strategy 5: Increase availability of Early Generation Seeds (EGS). This can be done by implementing the following:

- **Promote Production and Multiplication of Rapid Technologies:** Encourage the development and expansion of technologies that allow for swift production and multiplication processes.
- **Strengthen Breeding Capacity:** Support and enhance the capacity of breeders by facilitating the production of EGS, ensuring the availability of high-quality genetic material.
- **Facilitate Linkages (PPP):** Foster strong linkages through public-private partnerships (PPP) to promote collaboration between different stakeholders in the seed industry.
- **Streamline and Strengthen Authorization of Protected Varieties:** Improve and fortify the process of authorizing protected varieties, ensuring a streamlined and efficient system for managing intellectual property in the seed sector.

- **Demand-Driven Breeding:** Emphasize client-oriented research, tailoring breeding efforts to meet consumer preferences and market demands, ensuring a demand-driven approach to the development of new seed varieties

5.2 Seed Accessibility

To enhance access to quality and affordable seeds, members solidly agreed on a set of proposed strategies, which include:

Strategy 1: Improving Products and Productivity in Seed Systems through:

- **Capacity Building Training:** Members propose implementing training programs to disseminate knowledge on advanced techniques in seed production, preservation, branding, and advertising. The aim is to boost the market for seed growers, encouraging more individuals to enter the seed growing business.
- **Subsidies for Seed Growing Firms:** Providing subsidies to seed growing firms to alleviate production costs, potentially attracting more participants to engage in seed cultivation and consequently increasing the number of seed growers.
- **Awareness Campaigns:** Members recommend utilizing media channels and establishing demonstration ranches to raise awareness about the availability of quality seeds and promote their usage this approach is intended to which increase demand for seed and intern motivate productivity.
- **Farmer Training:** Implementing training programs for farmers on preserving excess produce to reduce post-harvest losses.

5.3 Performance Indicators

- **Seed Yield per Hectare:** Measures the quantity of seeds produced per unit area, indicating productivity improvements.
- **Seed Adoption Rates:** Tracks the percentage of farmers adopting improved seed varieties, indicating the acceptance and utilization of better seeds.
- **Cost-Benefit Analysis:** Assesses the profitability of using improved seeds compared to traditional varieties, indicating the economic viability for farmers.

Strategy 1: Strengthening Capacity and Network of Seed Hubs and Agro-Dealers: This can be achieved by the following interventions:

- **Creation of Associations:** Members propose establishing associations for seed growers and agro dealers to address common challenges and opportunities.
- **Secure Agro Deals:** Ensuring timely seed supply by seed growers to agro dealers to guarantee a stable and secure market.
- **Training for Agro-Dealers:** Seed hubs should provide training sessions for agro-dealers to enhance their knowledge of certified seed usage, with possible assistance from TOSCI.

5.3.1 Performance Indicators

- **Expansion of Seed growers and Agro-Dealers Distribution Network:** Measures the increase in the number of seed hubs and agro-dealers associations.
- **Capacity Building Matrix:** Tracks the number of training sessions conducted and the improvement in knowledge/skills of seed hub personnel and agro dealers.

Strategy 2: Leveraging Group-Based Financing and Credit Guarantees to Smallholder Farmers (SHF):

- **Financial Literacy Programs:** Teach farmers how to use money better.
- **Partnerships with Financial Institutions:** Work with banks to give farmers better loans.

5.3.2 Performance Indicators

- **Number of Beneficiary Groups:** Measures the number of smallholder farmer groups benefiting from financing initiatives, indicating outreach.
- **Loan Repayment Rates:** Tracks the percentage of loans repaid, indicating the effectiveness of credit guarantees and financial literacy among farmers.

Strategy 3: Deploying Temporary Safety Net Mechanisms:

- **Streamlined Subsidy Deployment Process:** Quickly give help when prices are very bad.
- **Contingency Plans for Crisis Response:** Make plans for when things go wrong to help farmers quickly.

5.3.3 Performance Indicators

- **Subsidy Impact on Affordability:** Measures the extent to which subsidies during price crises alleviate the financial burden on farmers in accessing seeds.
- **Timeframe of Crisis Response:** Tracks the efficiency of deploying safety-net mechanisms during crises, ensuring timely assistance to farmers.

5.4 Seed Adoption and Utilization

Progress and challenges facing adoption and utilization and the suggested solutions:

- **Seed certification:** The seed system in Tanzania has grown over the years due to improved public seed services, increase in the number of agro dealers, increased volumes of certified seed, and increase in seed enterprises
- **Lack of policies:** The challenge remains on the adoption of quality seed due to a limited private seed sector growth in various parts of the country, inversion of fake seed, and lack of seed policy to act as the blueprint for seed sector, among other reasons.
- **Quality seeds:** Inversion of feck seeds has significantly impacted the adoption and use of the quality seeds. This is the challenge being faced by the majority of farmers who are mostly in interior rural areas and who form an important part of the seed users' population.
- **Market control:** Among the reasons for existence of fake seeds include inadequate quality control of the market due to intensity of agricultural sector in the country whereby human and financial resources are still constraining the TOSCI, and insufficient farmers education and awareness on identifying, consequences and alternatives to avoid fake seed.
- **Fraudulence:** To control the challenge, fines, penalties, and other related stiffer systems should be used sufficiently to deter fraudulence.
- **Adoption of EAC seed system:** Tanzania has standardized seed import and export documentation into three main documents; a quality certificate; a plant import permit, and a phytosanitary certificate from the country of origin, to adopt the EAC seed system
- **Importation of seeds varieties:** Tanzania is also using imported seed from USA, United Arab Emirates (UAE), Zimbabwe, Zambia, South Africa, and Malawi. Import permit from the Seed Unit of the MAFC helps companies already approved in Tanzania, to import varieties of seeds. They must meet the phytosanitary certificate requirements of the Plant Health Services office.
- **Union for the Protection of New Varieties of Plants:** In terms of adopting other international norms, Tanzania is an official UPOV member following the adoption of a UPOV-compliant Plant

Breeders' Rights Act in Zanzibar. She is also one of the 163 countries that are signatories of the Cartagena Protocol on Biosafety to the Convention on Biological Diversity, an international agreement that aims to ensure the safe handling, transport, and use of Living Modified Organisms (LMOs) resulting from biotechnology. The National Biosafety Framework is in accordance with the provisions established in the Cartagena Protocol

5.5 Seed Sustainability

To improve the seed *sustainability* of quality seeds members have solidly agreed on a set of proposed strategies, which include:

- **Preserving original seeds:** The farmers or seed processors should have their original variety which should be maintained before producing other new varieties of seed. Then from there they can produce basic seeds and can determine who will supply. Here facilities are needed to preserve original and developing new varieties of seeds. Factors like cooler temperature; isolation systems like green house, screen house, isolated areas, irrigation systems, farm management.
- **Seed Value Chain** identification: Actors' categorization nationally/locally, regionally, and internationally. Actors should be identified for the purpose of successful coordination. For example, it should be known who is producing basic seed, who is producing thirty-five seed, public varieties, private varieties, and company varieties. For example, TARI, and Agricultural Seed Agency (ASA) are for basic seed production.
- **Database establishment:** Developing the repository of databases on seeds produced and the seasons or periods produced. All seed producers should access the data. It should be on varieties, who is producing it and the prices. E.g., TOSCI website. The challenge comes when the ministry introduces price ceiling sometimes it does not match with costs of production.
- **Categorization of the varieties of seeds:** the seeds themselves should be categorized and from there it may be easy to determine which should be produced by who.
- **Agronomical practices:** There is a need to test soils to see which can bear the best yield per each variety of seed produced. This will combine seed production and soil management. Here there should be enough extension officers trained and distributed in most parts to ensure proper matching of seeds and soils for best yields.
- **Free value chain participation:** To allow all players to participate in setting prices for seeds. Prices should be set in such a way that they will be profitable to all actors in the value chain. There should be a market intelligence system to deal with issues pertaining to information on, and

determination of the prices of seeds. There should be a policy for governing seed price determination.

- **Recruiting mechanisms:** Setting a succession plan for actors, especially the experts and professionals. As it is now many of the experts are old, there should be a mechanism to recruit and train new professionals in the field who will replace the old ones.
- **Demand-driven approach:** Identification of seasonal demands from the R&D part. Since not all seeds are needed in various seasons, seeds should be produced in accordance to the need for them to be consumed and bring needed results. So, there should be a development of varieties preferred by the consumers or user/market. Production should be demand driven.
- **Open communication:** There should be communication between seed producers, crop growers, suppliers. This should go hand in hand with increasing multipliers of the highly demanded varieties.
- **Targeted policy formulation:** There should be considerable policies and a regulatory environment to benefit all actors. So, revising current available policies and removing contradicting policies. Example on one side some policies are promoting seed production and some prohibiting the progress. So, there should be harmonization of the policies. Issues of multiple taxing is discouraging the investors.
- **Distribution boundaries:** Proper selection of partners to work with when it comes to the point of distribution and promotion of the seeds produced. Some may be international which may enter into agreement with seed producers to distribute even outside of the national boundaries. International companies should have assembly plants and other facilities in the country to ensure the seeds are produced from within, to ensure reliability of supply of seeds.
- **Patent rights:** Seed producers should be given patent rights for them to retrieve their innovation costs. Prioritization of local producers or dealers to reduce import dependency. There should be considerable investment plans to have a considerable supply or availability of seeds needed. Strengthening predictable policies to promote investment. Strengthening policies to protect domestic investors who are still in the initial stages to help them build muscles in the market competition should be devised.
- **Commercializing the seed sector:** There should be a distribution of efforts, those to be carried out by the government should be separated from those to be carried by the private sector for successful results.

6. Conclusion

Closing remarks were delivered by a representative from USAID, who extended sincere gratitude to all attendees for their commitment to the meeting and recognized the invaluable contributions made by each participant. The representative highlighted the significant insights gleaned during the discussions, emphasizing their crucial role in shaping the trajectory of the Tanzania seed sector.

In a spirit of unity and collaboration, the representative expressed appreciation for the collective effort demonstrated by the attendees. Furthermore, a humble request for continued support from the members was put forth, underscoring the importance of their ongoing commitment to the seed sector strategy currently in progress.

Professor Nyange from ASPIRE TZ expressed heartfelt gratitude on behalf of the organizers. With an official declaration, Professor Nyange marked the conclusion of the workshop, acknowledging the collective efforts and contributions that will undoubtedly steer the course for the future of the Tanzania seed sector. The closing remarks encapsulated a sense of appreciation, collaboration, and anticipation for the positive impact that the collective endeavors will have on the development of the seed sector in Tanzania.

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