EDUARDO MONDLANE UNIVERSITY

CENTRE OF EXCELLENCE IN AGRI-FOOD SYSTEMS AND NUTRITION IN COLLABORATION WITH HIGHER POLYTECHNIC INSTITUTE OF GAZA (ISPG) AND HIGHER POLYTECHNIC INSTITUTE OF MANICA (ISPM)

CALL Nº 04/2025

June 16th, 2025

CALL FOR SUBMISSION OF APPLICATIONS: COMUNITY ACTION RESEARCH PROJECTS (CARP-E) FOR ENTERPRISE CREATION, INCUBACTION AND BUSINESS SNINOFFS

Title: **Roots and Tubers Community Seed Systems Development and Commercialization**

Background

Roots and tubers, such as cassava, sweet potato, and yams, are vital staples for food and nutrition security, income diversification, and rural livelihoods in Mozambique, where approximately 70% of the population resides in rural areas and depends on agriculture (FAO, 2021)[1]. These crops are critical for smallholder farmers, providing a reliable source of calories, nutrients, and income, particularly in regions prone to climatic variability. However, the potential of roots and tubers is constrained by significant challenges in seed systems, which limit productivity, resilience, and market integration (IFAD, 2020)[2].

[1] FAO (2021). *Agricultural Transformation in Mozambique: Opportunities and Challenges*. Rome: Food and Agriculture Organization of the United Nations.

[2] IFAD (2020). *Agricultural Sector Assessment Mozambique*. International Fund for Agricultural Development.

Key constraints include limited access to high-quality, certified planting materials, which are often unavailable or unaffordable for smallholder farmers. Informal seed systems dominate, frequently distributing low-yielding, disease-infected, or genetically unstable seeds, leading to reduced crop yields and post-harvest losses estimated at 30-40% (World Bank, 2022)[3]. Weak seed multiplication and distribution networks, coupled with inadequate storage infrastructure, exacerbate these issues, particularly in remote areas. Women and youth, who form a significant portion of the agricultural workforce, face additional barriers such as limited access to land, financial resources, and technical knowledge, undermining inclusivity and sustainability in seed systems (CARE, 2019)[4]. Climate change, characterized by rising temperatures, unpredictable rainfall, and increased pest and disease pressures, further threatens production, necessitating climate-resilient seed varieties and practices (USAID, 2021)[5].

Despite these challenges, opportunities for innovation and transformation are emerging. Advances in breeding climate-resilient, high-yield varieties, coupled with community-based seed multiplication and digital distribution platforms, show promise in improving seed quality and accessibility (CIAT, 2020)[6]. Low-cost storage technologies, such as solar-powered cooling or hermetic bags, can reduce post-harvest losses and ensure year-round seed availability. These innovations, when designed inclusively and contextually, can empower smallholder farmers, particularly women and youth, by fostering entrepreneurial opportunities, enhancing market linkages, and promoting sustainable seed systems.

This call for proposals, under the Community Action Research Project (CARP-E) of the Regional Center of Excellence in Agri-Food Systems and Nutrition (CE-AFSN) at Eduardo Mondlane University, seeks to identify and support innovative, scalable models to strengthen roots and tubers seed systems in Mozambique. It encourages solutions that enhance seed quality, improve farmer access to certified seeds, promote entrepreneurial opportunities in seed production and commercialization, and build resilience against climate change. Projects must result in enterprises that address specific constraints, respond to community needs, and engage stakeholders to support business development. These enterprises may be owned by communities, cooperatives, entrepreneurs, or university affiliates. Proposals should identify targeted seed system gaps and existing enterprises addressing similar needs.

Applicants are encouraged to propose solutions that:

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[3] World Bank (2022). *Mozambique Agriculture Public Expenditure Review*. Washington, DC: World Bank Group.

[4] CARE (2019). *Gender and Agriculture in Mozambique: A Policy Review*.

[5] USAID (2021). *Climate Risk Profile: Mozambique*. United States Agency for International Development.

[6] CIAT (2020). *Innovations in Root and Tuber Crops for Food Security in Africa*. International Center for Tropical Agriculture.

- Develop and disseminate climate-resilient seed varieties;
- Strengthen community-based seed multiplication and certification systems;
- Leverage digital platforms for efficient seed distribution;
- Innovate affordable seed storage and preservation technologies;
- Foster entrepreneurial models for seed commercialization;
- Build farmer capacity through training and extension services;
- Advocate for policies to support community seed systems.

This call aims to unlock the potential of roots and tubers as catalysts for improved livelihoods, enhanced food and nutrition security, and vibrant rural economies across Mozambique.

Thematic Areas

Thematic Area 1: Development of Climate-Resilient Seed Varieties

Climate change is severely impacting agricultural productivity in Mozambique, with rising temperatures, unpredictable rainfall, and increased pest and disease pressures threatening the production of staple roots and tubers such as cassava, sweet potato, and yams. Smallholder farmers, who rely on these crops for food security and income, are particularly vulnerable. To address these challenges, this thematic area focuses on developing, testing, and disseminating climate-resilient seed varieties that can withstand harsh environmental conditions while maintaining high yields and nutritional value.

Focus on breeding and disseminating high-yield, drought-resistant, and pest-tolerant varieties of cassava, sweet potato, and other roots and tubers. Projects may include participatory breeding programs with farmers, leveraging biotechnology, and field trials to validate performance under local conditions.

Thematic Area 2: Community-Based Seed Multiplication and Certification

Access to high-quality, certified seeds remains a critical challenge for smallholder farmers in Mozambique, particularly for roots and tuber crops such as cassava, sweet potato, and yams. Many farmers rely on informal seed systems, which often distribute low-yielding, disease-infected, or genetically unstable planting materials. This thematic area focuses on strengthening community-based seed multiplication and certification systems to ensure farmers have access to affordable, climate-resilient, and genetically pure seeds that improve productivity, food security, and income. Support initiatives that establish decentralized seed multiplication hubs managed by local farmers. Projects should incorporate training on seed certification standards, post-harvest handling, and quality control to ensure market readiness.

Thematic Area 3: Digital Platforms for Seed Distribution

Access to quality seeds remains a critical bottleneck in Mozambique's agricultural development, particularly for smallholder farmers growing roots and tubers. Traditional seed distribution

systems often fail to reach remote areas, lack transparency in pricing and quality, and create information asymmetries between producers and farmers. This thematic area focuses on developing and scaling digital platforms for efficient, equitable seed distribution that connects seed producers, agro-dealers, and farmers through technology-driven solutions.

Develop mobile apps or online marketplaces to connect seed producers with smallholder farmers. Features may include real-time inventory tracking, pricing transparency, and logistics support to reduce distribution bottlenecks.

Thematic Area 4: Seed Storage and Preservation Technologies

Post-harvest losses in roots and tubers due to poor storage conditions remain a critical challenge in Mozambique, with an estimated 30-40% of seed quality deteriorating before planting. This thematic area focuses on developing and promoting innovative, affordable seed storage and preservation technologies to maintain seed viability, reduce losses, and ensure year-round availability of high-quality planting materials for smallholder farmers.

Innovate low-cost, energy-efficient storage solutions (e.g., solar-powered cooling, hermetic bags) to extend seed shelf life and reduce post-harvest losses. Projects should prioritize scalability and adaptability to rural settings.

Thematic Area 5: Entrepreneurial Models for Seed Commercialization

Mozambique's seed sector faces critical challenges in bridging the gap between seed research, production, and farmer adoption. This thematic area focuses on developing sustainable, market-driven entrepreneurial models that transform seed systems into viable agribusiness opportunities while ensuring smallholder farmers have consistent access to high-quality planting materials for roots and tubers.

Encourage business initiatives such as seed cooperatives, franchising, or village-based agro-dealers. Proposals should outline revenue models, marketing strategies, and partnerships with local stakeholders.

Thematic Area 6: Capacity Building and Farmer Training

Sustainable transformation of Mozambique's roots and tubers sector requires a knowledgeable, skilled, and empowered network of farmers, seed producers, and agri-entrepreneurs. This thematic area focuses on comprehensive capacity development programs that bridge critical knowledge gaps, enhance technical competencies, and foster innovation adoption in seed production, storage, and commercialization.

Design training programs on seed production, business management, and sustainable farming practices. Projects may use extension services, demo plots, or peer-to-peer learning networks.

Thematic Area 7: Policy Advocacy for Seed Systems Strengthening

Effective policy frameworks are fundamental to transforming Mozambique's roots and tubers seed systems. This thematic area focuses on evidence-based policy advocacy to create an enabling environment that supports quality seed production, distribution, and adoption while addressing systemic bottlenecks in the regulatory landscape.

Research and advocate for policies that support community seed systems, such as subsidies for certified seeds, streamlined registration processes, or incentives for private sector involvement.

3. Who should apply

This call invites faculty members (Principal Investigators, Lecturers and researchers) from Eduardo Mondlane University (UEM), Higher Polytechnic Institute of Manica (ISPM), and Higher Polytechnic Institute of Gaza (ISPG) to submit proposals that align with the thematic areas outlined above.

4. Application Requirements:

- Be a Principal Investigator, Lecturer or Researcher of UEM, ISPM and ISPG.
- Technical and financial proposal: Refer to Annex 1.
- Curriculum Vitae.

5. Schedule of Activities

Table 1. Schedule of Activities

Activity	Period/Date
Submission of proposals	16 to 30 June, 2025
Evaluation and Selection	1ST to 3rd July, 2025
Publication of results	July 4th , 2025
Implementation period	July to December 2025

6. Budget

- Each selected project will receive funding of up to USD 15,000.

Application documents must be submitted to the following email address: dir.ceafsn@uem.mz by June 30th, 2025. The same email can be used for further details or additional information about the process. Details regarding the terms of reference and application forms can be accessed in the following website: www.ceafsn.uem.mz.

The Director of CE-AFSN

(Prof. Doutor Rogério Marcos Chiulele)

ANNEX 1:

1. CARP-E application form

2. Entrepreneurs/start-ups application form and with the Costing Excel.

Available in www.ceafsn.uem.mz