Seeds of Change: Unlocking Farm Income and Climate Resilience through Improved Crop Varieties in Northern Uganda

1. Project Overview

Project Title: Seeds of Change: Unlocking Farm Income and Climate Resilience through Improved Crop Varieties in Northern Uganda
Implementing Organization: Resilient North Uganda (RNU)
Geographic Focus: Northern Uganda (Acholi and Sebei sub-regions, including Agago, Amuru, Gulu, Kitgum, Lamwo, Nwoya, Pader, Kween, and Kapchorwa)
Target Beneficiaries: Smallholder farming households (with deliberate focus on women, youth, and post-conflict communities)
Thematic Areas: Climate-smart agriculture, food security, income generation, resilience building

Seeds of Change is a flagship, evidence-driven program of Resilient North Uganda designed to increase farm productivity, household income, and climate resilience among smallholder farmers in Northern Uganda. The project responds to persistent challenges of low agricultural productivity, climate variability, poor access to quality inputs, and weak extension systems in post-conflict and structurally disadvantaged regions. By promoting the adoption of improved maize and groundnut varieties alongside farmer training and market-oriented agronomic practices, the project seeks to unlock inclusive and sustainable rural growth.

The project is grounded in rigorous empirical research conducted in Northern Uganda, which demonstrates that adoption of improved seed varieties significantly increases farm income and strengthens household resilience, particularly when complemented by extension support, access to markets, and productive assets. Seeds of Change translates this evidence into scalable, community-centered action aligned with national priorities and donor frameworks.

2. Problem Statement and Context

Agriculture remains the backbone of Uganda's rural economy, employing over 70% of the labor force. However, productivity among smallholder farmers remains low due to reliance on traditional seed varieties, rain-fed systems, limited access to extension services, and increasing exposure to climate shocks. These challenges are most acute in Northern Uganda, a region recovering from over two decades of conflict that disrupted livelihoods, infrastructure, and agricultural systems.

Despite favorable agroecological conditions, Northern Uganda continues to register some of the highest poverty and food insecurity rates in the country. Smallholder farmers face multiple, reinforcing constraints: limited availability of certified seed, high input costs, poor rural roads, weak market linkages, and exposure to climate risks such as droughts and erratic rainfall. As a result, adoption of improved crop technologies remains uneven and exclusionary, often favoring better-resourced households while leaving behind the most vulnerable.

Empirical evidence from farm-level data in Northern Uganda confirms that while improved maize and groundnut varieties have strong income-enhancing potential, structural and institutional barriers constrain widespread uptake. Without deliberate, inclusive, and context-specific interventions, these technologies risk deepening inequality rather than driving broad-based rural transformation.

3. Project Objectives and Outcomes

Overall Goal

To improve farm income, food security, and climate resilience of smallholder farmers in Northern Uganda through inclusive adoption of improved crop varieties and climate-smart agricultural practices.

Specific Objectives

1. Increase adoption of improved, climate-resilient maize and groundnut varieties among smallholder farmers.
2. Strengthen farmer knowledge and skills in Good Agronomic Practices (GAP) through practical training and demonstrations.
3. Improve household farm income and productivity through access to quality inputs and extension support.
4. Enhance resilience to climate and market shocks, particularly among women- and youth-headed households.

Expected Outcomes

- Increased use of certified improved maize and groundnut seed varieties.
- Improved crop yields and farm profitability.
- Enhanced farmer knowledge of climate-smart and market-oriented agronomic practices.
- Strengthened linkages between farmers, input suppliers, and local markets.
- Improved household food security and income stability.

4. Project Approach and Key Activities

Seeds of Change adopts an integrated, farmer-centered implementation model that combines input support, capacity building, and learning.

Key Components

a) Improved Seed Access
Distribution of high-yielding, climate-resilient maize and groundnut varieties suitable for local agroecological conditions. Seed selection integrates farmer preferences and lessons from participatory varietal evaluation.

b) Farmer Training and Extension Support
Provision of hands-on training in Good Agronomic Practices, including land preparation, planting density, soil fertility management, pest and disease control, and post-harvest handling. Training is delivered through farmer field schools, demonstration plots, and lead farmers.

c) Demonstration and Learning Sites
Establishment of community demonstration plots to showcase yield differences between traditional and improved varieties and promote peer learning.

d) Gender and Youth Inclusion
Deliberate targeting of women and youth farmers, with tailored training schedules and leadership roles to reduce barriers to participation.

e) Monitoring, Evaluation, and Learning (MEL)
Integration of Monitoring, Evaluation, Accountability, and Learning (MEAL) systems to track adoption, yield, income changes, and lessons for adaptive management.

5. Evidence Base and Rationale

Seeds of Change is anchored in rigorous econometric analysis using household-level data from Northern Uganda. The underlying research employed probit models and two-stage income regressions with selection bias correction to assess determinants and impacts of improved seed adoption.

Key findings informing the project include:

- Education, extension access, seed availability, asset ownership, and proximity to markets significantly increase adoption likelihood.
- Adoption follows a non-linear age pattern, peaking among middle-aged farmers.
- Improved seed adoption leads to statistically significant increases in farm income.
- Complementary services (extension, infrastructure, input access) amplify income gains.

These findings underscore that technology alone is insufficient; impact depends on integrated delivery models that address institutional and structural constraints. Seeds of Change operationalizes these insights at the community level.

6. Alignment with Donor and Policy Priorities

Seeds of Change aligns strongly with the priorities of development partners and government strategies, including:

- **UNCDF:** Inclusive economic development, resilience building, and market access for vulnerable communities.
- **Australian High Commission (DAP):** Economic empowerment, climate change adaptation, and community resilience.
- **Embassy of the Netherlands:** Sustainable agriculture, seed sector development, and food security.
- **Uganda National Development Plan (NDP III):** Agro-industrialization, productivity enhancement, and inclusive growth.

The project contributes directly to SDGs 1 (No Poverty), 2 (Zero Hunger), 8 (Decent Work), and 13 (Climate Action).

7. Sustainability and Scaling

Sustainability is embedded through farmer capacity building, local demonstration plots, and strengthened linkages with input suppliers and extension actors. By enhancing farmer knowledge and confidence, the project reduces long-term dependence on external support. Lessons generated will inform scaling through partnerships with local governments, NGOs, and development partners.

8. Monitoring, Evaluation, Accountability, and Learning (MEAL)

RNU applies a robust MEAL framework to ensure effectiveness, transparency, and accountability. Key indicators include seed adoption rates, yield changes, income variation, and beneficiary satisfaction. Continuous learning informs adaptive management and evidence-based reporting to partners.

9. Conclusion

Seeds of Change demonstrates that improved crop varieties, when delivered through inclusive, context-sensitive systems, can unlock meaningful gains in income, food security, and resilience for smallholder farmers in Northern Uganda. By translating rigorous evidence into practical action, the project offers donors a high-impact, scalable investment opportunity to support climate-smart agriculture and inclusive rural transformation in one of Uganda's most vulnerable regions.