LEADS DEVELOPMENT MODEL

Sustainable Livelihood Promotion Initiative

MODEL: Seed Bank for Sustainable Agricultural Practices

1. Introduction

The Community Seed Bank is established as part of the project intervention to preserve indigenous seed varieties, strengthen local seed security, and ensure the timely availability of quality seeds to farming communities. Experience has shown that seeds supplied through government agencies such as the Agricultural Technology Management Agency (ATMA), Krishi Vigyan Kendra (KVK), and the Department of Agriculture often reach farmers after the optimal sowing period, adversely affecting agricultural productivity. To address this challenge, LEADS has promoted community-managed Seed Banks that provide farmers with timely access to quality planting materials while conserving valuable indigenous germplasm.

The Seed Bank primarily serves smallholder farmers by conserving, producing, and distributing locally adapted, climate-resilient seed varieties. Priority is given to seeds possessing high yield potential, resistance to pests and diseases, tolerance to climatic stress, and suitability for low-input farming systems. In addition to improving seed accessibility, the Seed Bank contributes to sustainable agricultural development by conserving plant genetic resources that support future crop improvement and climate resilience.

2. Objectives

The Community Seed Bank has been established with the following objectives:

- To ensure the timely availability of quality seeds for farming communities.
- To conserve indigenous and locally adapted crop varieties for future generations.
- To strengthen community seed security and reduce dependence on external seed sources.
- To preserve plant genetic diversity for future crop improvement programmes.
- To promote climate-resilient and sustainable agricultural practices.

- To enhance crop productivity, household food security, and farmers' livelihoods.
- To strengthen community institutions through farmer-managed seed systems.

Steps of Implementation – Community Seed Bank Model

1.Community Mobilization: Identify farmer groups, assess local seed needs, and build community ownership. One Community Seed Bank has been established in each project cluster to ensure the local availability of quality seeds throughout the year.

2.Seed Bank Establishment: Set up a community-managed Seed Bank with suitable storage infrastructure. The Seed Bank serves as a repository of valuable plant genetic resources by conserving crop varieties possessing desirable characteristics such as high productivity, disease and pest resistance, drought tolerance, nutritional value, and adaptability to changing climatic conditions. Preservation of these genetic resources safeguards traditional crop diversity while providing valuable breeding material for the development of improved crop varieties.

3.Seed Identification & Collection: Identify and collect indigenous, locally adapted, and improved seed varieties. The Seed Bank stores both indigenous and improved varieties of important crops, including onion, pigeon pea (arhar), mustard, horse gram, maize, wheat, and traditional paddy. Seeds are scientifically processed, stored, and distributed to farmers during the sowing season through community-based management systems at affordable prices.

4.Seed Processing & Storage: The Seed Bank follows scientific protocols for drying, cleaning, grading, packaging, and storing seeds under controlled temperature and moisture conditions. Most agricultural crop seeds are orthodox seeds, capable of surviving long-term storage under cool and dry conditions.

5.Capacity Building: Capacity building forms an integral component of the Community Seed Bank model. LEADS regularly conducts training programmes for project staff, community members, and farmer groups on scientific seed selection, collection, production, processing, storage, regeneration, quality control, and distribution.

6.Seed Multiplication, Regeneration and Quality Monitoring: Seeds are living biological materials that require appropriate storage conditions to maintain their viability and genetic purity over extended periods. The Seed Bank regularly monitors seed quality through periodic germination tests and quality assessments. Since seed viability naturally declines over time, stored seed lots are regenerated whenever germination

falls below the prescribed standards. Regeneration is carried out by cultivating the stored seeds under controlled conditions and collecting fresh seeds for subsequent storage.

7.Community Management: Ensure farmer participation in decision-making, record keeping, and Seed Bank management. The Community Seed Bank also promotes the preservation of indigenous knowledge related to seed selection, treatment, storage, and crop management while integrating scientific seed management practices.

8.Partnership & Technical Support: Strong partnership is established with the Department of Agriculture, ATMA, KVKs, research institutions, and technical experts to facilitate access to improved technologies, technical guidance, quality seed material, and financial support.

9.Financial Sustainability: Financial sustainability is supported through a revolving seed fund, whereby a portion of seed sales is reinvested in procurement, storage, maintenance, and future operations.

10. Review & Scaling: Regular review meetings enable timely identification of operational challenges and implementation of corrective measures. Through these interventions, the Arabhusai Mahila Utpadak Samuh successfully established a transparent, community-owned, and sustainable Seed Bank that effectively addresses the seed requirements of local farmers. The established model has been successful and can be replicated in nearby villages/Panchayats

3. Expected Outcomes

The Community Seed Bank is expected to achieve the following outcomes:

- Timely availability of quality seeds during every sowing season.
- Conservation of indigenous and locally adapted crop varieties.
- Enhanced climate resilience through drought-tolerant and pest-resistant seed varieties.
- Improved agricultural productivity and household food security.
- Reduced dependence on delayed external seed supplies.
- Conservation of valuable plant genetic diversity for future crop improvement.
- Strengthened community institutions through farmer-managed seed systems.
- Enhanced knowledge and technical capacity of farmers in scientific seed management.

Overall, the Community Seed Bank contributes significantly towards sustainable agriculture, biodiversity conservation, and resilient rural livelihoods.

4. Sustainability, Scalability and Future Outlook

The sustainability of the Community Seed Bank depends upon strong community ownership, scientific seed management, sound financial planning, and continuous capacity building. Operational sustainability is achieved through quality assurance systems, efficient resource utilization, environmentally responsible practices, and the conservation of locally adapted crop varieties. Financial sustainability is supported through a revolving seed fund, whereby a portion of seed sales is reinvested in procurement, storage, maintenance, and future operations. Continuous training programmes strengthen institutional capacity and ensure smooth succession of leadership and technical expertise within the community. The model offers significant potential for replication across other villages and Panchayats. Adoption of digital inventory systems, improved record management, and strengthened partnerships with government departments and agricultural research institutions will further enhance operational efficiency. In the future, the Arabhusai Community Seed Bank aims to expand its collection of indigenous crop varieties, extend its services to neighbouring villages, strengthen community institutions, and promote sustainable agricultural development across the region.

Concluding Remarks

The implementation of the Community Seed Bank has generated several important lessons. A clearly defined governance structure, operational guidelines, and business plan are fundamental to the successful management of a community-owned Seed Bank. Scientific storage infrastructure, systematic documentation, regular monitoring, and quality assurance are essential for maintaining seed viability and genetic purity. Continuous capacity building significantly enhances members' technical knowledge, leadership abilities, and institutional management skills. Strong collaboration among farmers, government agencies, agricultural experts, and research institutions improves access to technical support, innovation, and financial resources. Most importantly, community ownership and collective decision-making have emerged as the foundation of the Seed Bank's success. The experience demonstrates that, with appropriate technical support, effective institutional arrangements, and active community participation, a locally managed Seed Bank can become a sustainable mechanism for conserving agricultural biodiversity, improving productivity, strengthening food security, and promoting self-reliant rural development.