Community Seed Banks for Building Climate-Resilient and Sovereign Seed Systems

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Tribal farmers cultivate a variety of crops including millets, pulses, tubers, and rice varieties that are adopted over generations. Most of the crop varieties cultivated by these communities are indigenous with unique characteristics such as drought tolerance, adapted to the local climate and production environments.

As the spread of commercial crop varieties and hybrids accelerated, traditional seed-saving practices have declined leading to a pressure on the sustenance of indigenous crop varieties. Community Seed Banks (CSB) offer a community-led mechanism to collect, clean, store and regenerate the crop seeds, preventing the loss of valuable indigenous germplasms.

The agrobiodiversity of India is rich and is underutilized given that the country is one of the 12 mega gene centres of the world, there is potential for utilizing and preserving this rich diversity. The indigenous crop varieties are resilient to climate change and can help in mitigating climate change and reduce the yield loss.

Many of these varieties are rich in nutrients including micronutrients and minerals such as calcium and iron, thus ensuring the nutrition security of the tribal communities. Besides, cultivation of indigenous crop varieties is also embedded in the local food habits, cultural beliefs of the tribal communities. Most of the tribal communities follow mixed cropping systems of millets, pulses and other crops. Therefore, cultivation of landraces that fit well under these local production systems ensure dietary diversity of communities.

CSB as a mechanism for preserving the indigenous crop varieties

Seed banks also improve seed security by ensuring timely and affordable access to quality planting material in remote tribal regions. Traditional landraces preserved in these banks are better adapted to local stress conditions, making them crucial for climate-resilient agriculture. CSB plays an important role as they address the following issues:

Seed security for the communities: Seed security is important for ensuring food security. CSBs ensure seed sovereignty and autonomy for the communities by providing an opportunity to store, multiply and share the local varieties.

Preserving agro-biodiversity: CSBs are crucial to preserve the rich agrobiodiversity of crops through in-situ conservation of landraces.

Promotes agroecological practices: Cultivation of indigenous varieties is compatible with the local agroecological practices of the communities in line with their diverse cropping systems. Thus, it also improves the soil fertility.

Food and livelihood security*:* Tribal farmers are often small and marginal with limited financial capabilities to buy seeds from external sources. Local preservation of seed enables timely access to seeds thus ensuring their livelihood security.

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Cultural preservation: Seeds are part of cultural identity for the tribal communities. agricultural biodiversity in the tribal areas is tied to the heritage and traditional knowledge of the communities.

Economic empowerment: Community level production and preservation of seeds empowers farmers through local production of this critical input. Especially for women entrepreneurs who have historically been the custodians of seed knowledge.

Sustainability: Seed sovereignty fosters sustainable agriculture. Indigenous varieties are often less input intensive thus reducing the reliance on capital intensive inputs, extensive management. These varieties are ecologically well adapted with reduced risks of insect pest infestation.

Successful management of CSBs: The way forward

Greater community ownership through SHGs, FPOs, and village-level stakeholders can strengthen sustainability of the indigenous seed systems. Low-cost scientific storage technologies, local seed testing facilities and better training on seed regeneration will improve the quality of seeds of indigenous crop varieties. Linking CSBs with seed procurement schemes, biodiversity preservation institutions, and digital seed registries can ensure long-term conservation of the seeds thus, providing economic benefits to the farmers. Some of the policy actions that could contribute in conservation of indigenous crop varieties include:

Participatory breeding: Participatory breeding methods enables preserving the traits of indigenous crop varieties while also contributing to improvisation of indigenous varieties for increased yields.

Market access: Availability of markets for indigenous crops and crop varieties promotes their production. The promotion of millets as nutri-cereals is a successful example for how markets could incentivize the cultivation of local crops.

Policy Support*:* Institutional support mechanism in terms of procurement, distribution and subsidies helps in propagation of local seed varieties.

Infrastructural provision*:* Scientific storage and distribution channels are important for preservation of seeds.

Documentation of Indigenous Knowledge: traditional knowledge of seed system management needs to be documented and preserved so that the younger generation continues to employ the same as per the local context.

Leveraging the existing policy framework: The provisions under the PPV&FR Act (2001), National Gene Fund, biodiversity conservation policies can be leveraged to protect the rights of the tribal communities and preserve the indigenous crop varieties.

Scaling up: The existing network of the ICAR, KVKs, SHGs and FPOs can play a vital role in scaling up the operations of CSBs. It is pertinent to mention here that the ICAR plays an active role in the *in situ* and *ex situ* conservation of crop varieties at the local level. It has been promoting the establishment of CSBs along with the Krishi Vigyan Kendras (KVKs) and SHGs in remote and tribal areas. These banks conserve native landraces and farmers' varieties, making them accessible to local communities.