POLICY BRIEF

CGIAR | INITIATIVE ON Seed Equal

Strengthening Community Seed Banks for Gender Inclusive Development in India

IRRI International Rice Research Institute

CGIAR

MSSRF Science for Sustainable Development

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CONTEXT

Smallholder women and men farmers in India use diverse social networks to access seeds of their choice and related information. Women largely depend on informal seed systems, also referred to as farmer-managed or community seed systems. However, with changing agrarian relations, the informal seed systems are facing challenges in ensuring equitable access to traditional and community-preferred landraces or varieties through informal social networks, connections and exchange. At the field level, these changes adversely impact women and marginal farmers' access to preferred crops and varieties/ landraces, household gender relations, food and nutrition security, dietary diversity, food system resilience and livelihoods. To fill this gap in the informal seed systems, the Community Seed Banks (CSBs) model has been promoted as a strategy to strengthen and ensure access to traditional varieties of different crops, specifically neglected and under-utilized crop species and build seed-saving capacity at the local level (Vernooy et al. 2014 and 2022).

Given this backdrop, CSBs have evolved as informal institutions, governed and managed by local communities (collective action-based institutions) with the principal goal of conserving and promoting the cultivation of locally adapted varieties/landraces of several crop species and preserving agrobiodiversity. This has been promoted as a socially innovative strategy, integrating traditional practices in its operation to ensure equitable access to seeds for all when seeds are not available in the formal seed systems or the market.

In India, CSBs are known under a variety of names: Village Seed Banks, Seed Savers Network, Seed Saviours Group, Community Gene Bank etc. They conserve and promote cultivation of traditional landraces/locally adapted varieties of main food crops in the region (cereals, millets, pulses, oil seeds and vegetables), storing and managing varying quantities of locally grown seed material(s), ranging from a few kilograms per accession to a few hundred kilograms. CSBs have been in existence for about two and a half decades in India, largely promoted by non-governmental organizations (NGOs), research institutions and more recently by a few government entities. The main functions of CSBs include a collection of locally cultivated traditional varieties/landraces, reviving and strengthening their cultivation, promoting local consumption and strengthening local seed systems. In the recent past, the concept has been extended to promote the cultivation of notified varieties that are suitable to the local agroecosystems to improve the seed or varietal replacement rates (Reddy et al. 2006). Although women farmers are the key stakeholders in CSBs, in the process of their growth, coupled with changing varietal preferences and production systems, there have been changes in the gender and social facets. Despite notable contributions made by women to e CSBs in the informal seed systems, prevailing social gender norms reinforce inequalities and affect women's access to seeds and their effective participation in production (Puskur et al. 2021) and processing and value addition spheres.To map and understand changes in gender and social inclusion dimensions concerning CSBs in India, a research study was undertaken jointly by the International Rice Research Institute (IRRI) and the M S Swaminathan Research Foundation (MSSRF) during the period 2022-23 as part of the CGIAR Seed Equal Initiative. This study investigated the CSB's goal and strategies, operational processes, governance, communication strategies, relevance to policies and its impact from the gender perspectives. The study carried out a comprehensive literature review and also collected primary data to map active CSBs functioning across India. Based on this, the study mapped 144 CSBs in India and they are dealing on traditional paddy and millet varieties, pulses, oilseeds, and vegetables. Within this, ten CSBs were chosen for in-depth study based on the vulnerability of the associated agroecosystems, geographic diversity and operational structures (Table 1).

Table 1. Detailed profile and operations of the ten CSBs.

Name of the seed bank	Location	Focus community	Agro-ecosystem	Crops focussed	Broader operational structure	Promoting organization	Mode of seed transaction	Capacity building strategies	Inclusion of women, marginalised & youth	Information dissemination	Tangible impact of CSBs	Awareness of Farmer's Rights	Developing short-value chains and marketing food products locally
Amman Women SHG – Community Seed Bank, CIRHEP	Pudur, Nilakottai, Dindigul District, Tamil Nadu	Rural	semi-arid system - rainfed	Sorghum and greengram landraces	Women Self-Help Group promoted by CIRHEP	NGO	Seed loan	Seed quality assessment, storage techniques maintenance of registers and management of transactions	Yes	SHG federation meetings	Promotion of mixed cropping in the region with increased consumption of millets in diets	No	No
Community Seed Bank for Paddy in Goa Biodiversity Board	Curtorim and Bandora villages in the North Goa district of Goa	Rural	Coastal systems	Traditional Paddy varieties	Bank Management Committee (BMC), from men Farmer Groups supported by Goa Biodiversity Board	Govt. institution	Seed exchange/ loan	Seed bank management	No specific focus	Seed exhibition	On-farm conservation of traditional paddy landraces	Yes	No
Community Seed Bank, Gram Vikas	Kuubarahalli in Mallanayakanahalli gram Panchayat, Kolar District, Karnataka	Tribal	semi-arid system - rainfed	Traditional Paddy varieties and finger millet	Seed Bank Management Committee of Women Farmers Group, supported by Gram Vikas	NGO	Seed exchange/ loan	Seed quality assessment, storage techniques, maintenance of registers and management of transactions	Yes	Seed fair and exhibition	Promoting agro-biodiversity and promotion of traditional paddy and finger millet locally adapted varieties	No	Yes
Community Seed Bank, TEDE Trust	Thiruporur, Kancheepuram District and Palaiyur region in Nagapattinam district	Rural	Coastal system – irrigated	Traditional Paddy varieties	Started as CSB management committee – men farmers' group, later modified, with individual farmers, supported by TEDE trust	NGO	Seed exchange/ loan	Seed quality assessment, storage techniques, maintenance of registers and management of transactions	No specific focus	Demonstrations	On-farm conservation of traditional paddy landraces	No	Yes
CSB – Kudumbam	Keeranur in Pudukottai district of Tamil Nadu	Rural	Semi-arid system - Rainfed and irrigated	Traditional Paddy varieties and Kodo millet	Started as CSB; later modified with individual men and women custodian farmers supported by Kudumbam	NGO	Seed exchange/ loan	Seed quality assessment, storage techniques, maintenance of registers and management of transactions	Yes	Seed festival/ fair/health camps	On-farm conservation of traditional paddy landraces and millets and inclusion of millets in diet and value chain additions for traditional paddy landraces	No	Yes

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Community Seed Bank, Cohesion Foundation	Vansda in Navsari district of Gujarat	Rural and tribal	Hilly region	Traditional Paddy varieties, pulses and vegetables	Bank Management Committee – women, supported by Cohesion Foundation Trust	NGO	Seed exchange/ loan	Seed quality assessment, storage techniques, maintenance of registers and management of transactions maintaining	Yes	Seed fair and exhibition	on-farm conservation of traditional varieties	No	Yes
Seed network, Thanal	Trivandrum and Wayanad districts in Kerala	Tribal and rural	Hilly region	Traditional varieties of paddy and vegetables	Men and women farmers - custodian farmers supported by regional-level community seed banks managed by Thanal	NGO	Seed exchange/ loan	Seed quality assessment, storage techniques, maintenance of registers and management of transactions maintaining	Yes	Demonstrations	On-farm conservation of traditional paddy landraces and conservation of paddy wetlands for key ecological services	Yes	Yes
CSBs – Kolli Hills, MSSRF	Alathruanpatti, Kolli Hills, Namakkal, Tamil Nadu	Tribal	Hilly region	Traditional landraces of Small millets	Seed Bank Management Committee – Women SHGs	NGO	Seed exchange/ loan	Seed quality assessment, storage techniques, maintenance of registers and management of transactions maintaining	Yes	Local festivals and the SHG federation	On-farm conservation of millet landraces and value chain development	Yes	Yes
CSB- Koraput, MSSRF	Ramaguda, Boipariguda block	Tribal	Hilly region	Traditional Paddy and finger millet landraces	Seed Bank Management Committee – Women FPO	NGO	Seed exchange/ loan	Seed quality assessment, storage techniques, maintenance of registers and management of transactions	Yes	Farmer collectives and women's group	on-farm conservation of millet landraces and value chain development	yes	Yes
CSB, Srushtidnyan	Ratnagiri Maharashtra	Tribal and Rural	Hilly region	Traditional paddy and finger millet landraces	Seed bank management committee – Farmer interest group – women	NGO	Seed exchange/ loan	Seed quality assessment, storage techniques, maintaining the registers and managing the transactions maintenance of registers and management of transactions	Yes	Women's group	On-farm conservation of paddy landraces	No	No

Key Findings

The CSBs studied primarily focused on locally adapted traditional varieties and landraces of community-preferred crop species, intended to promote on-farm conservation of valuable crop genetic resources. Among these, paddy is the dominant crop conserved through CSBs, with locally adapted varieties dominating. More than 90 per cent of the CSBs are promoted by Non-Governmental Organizations (NGOs), followed by a few research organizations and government agencies. Andhra Pradesh, Telangana, and Madhya Pradesh have the highest number of CSBs in India. In the recent past, CSBs have also adapted to promote high-yielding notified varieties to improve varietal replacement rates, but their number is limited.

Objectives and various strategies: Core activities of CSBs include mapping traditional varieties and landraces, collecting seeds, raising awareness, organizing seed fairs, facilitating quality seed production, and facilitating seed availability to needy farmers. CSBs operate with transparency and social responsibility and foster trust among farmers. From the in-depth case studies and secondary sources, it is evident that these CSBs have been promoted by different agencies with multiple objectives: ranging from ensuring sustainable seed supply, serving as community-based conservation facilities, enhancing crop genetic resources, serving as a knowledge exchange network, facilitating sharing of traditional knowledge, promoting seed and varietal replacement to facilitating sustainable seed production practices.

To meet these objectives, diverse strategies were adopted by CSBs for both seed information exchange as well as for seed delivery. While some of the strategies adopted to meet these objectives are context-specific, significant methods include strengthening farmer networks to share knowledge and seed resources, raising awareness of farmers' rights, organise community seed fairs/festivals, building skills of farmers in seed production and management, forge institutional partnerships and bundle seed access with other services. The study also highlighted the importance of mainstreaming functions of CSBs using a cooperative/collective approach. This is essentially to harness social capital for effective function, thus ensuring social sustainability of CSBs in the longer term and reiterating seed as a common property.

Governance and operational processes: Most CSBs examined follow group-based or farmer-collective governance and operational pathways for both seed information exchange and delivery. Only two CSBs examined have adopted the nodal/individual farmer approach. Of these group-based CSBs, 60% are governed by women's groups and 40% have both men and women members. From the study, it is apparent that pro-women and collective approach strategies are strongly preferred by CSBs promoted by NGOs, and the use of this approach is limited within government and research institution promotional frameworks.

Regarding the operational boundaries, of the 144 CSBs, 45% are village-centric and 55% operate in clusters. The CSBs operate on seed loans or exchange or price-based models. In the seed loan or exchange model, the CSBs largely deal with locally adapted traditional varieties. This mode of transaction is primarily followed by women farmers, covering less economically important varieties and crop species and relies on social networks for borrowing and returning seeds. On the other hand, the fixed-price models transact high-yielding varieties of crops having commercial value and are promoted at the village level. In both cases, a cadre of seed-producing farmers has been designated to replenish seeds for the coming season.

The CSB model is also changing in tune with changes in production, demand and marketing systems for the traditional varieties and landraces. In some cases, the model has been undergoing a paradigm shift from group-based (collective action-based model) to individual-based models (informal network model) that has huge significant implications for gender parity. Specifically, women face challenges in operating independently, while men quickly adopt this approach and move to market-oriented transactions and

develop short value chains and market links.

Building Capacities for CSB Management: CSBs continually implement several capacity-building programmes to improve the skill of its members in the management of CSBs, seed quality parameters and methods of assessment, seed storage, replenishment of seed stocks and maintenance of accessions. As a result, CSBs provide opportunities for women to gain new skills, knowledge, management abilities, and attain leadership roles in seed management that has far-reaching consequences in providing social recognition for women at the community level.

Inclusion of women and tribal communities: CSBs are seen as social hubs for women farmers in rural and tribal areas. They provide a platform for knowledge exchange and social interactions in the context of such shrinking spaces in villages. Previously, women farmers used to practice community labour-sharing of important agronomic practices and participate in festivals and other cultural functions. In this context, they would share their experiences and knowledge. However, currently allocating more time to such events is not possible due to their other commitments and workload. CSBs have been mostly promoted in marginalized agro-ecosystems with more importance being given to rural women and tribal communities. In specific cases, the unique knowledge of tribal communities is integrated into the operations of CSBs.

Gender and CSBs: Published studies and case stories on CSBs did not explicitly discuss gender dimensions and social inclusion in seed systems although, they are, by default integrated by design. In India, 54% of 144 CSBs are accessed frequently by women, as they prefer the seed loan or exchange model for accessing seeds; because it does not need any financial resources and women can take independent decisions here. Women source seeds via exchange, seed loans, labour exchange, and/or grain exchange. As a result of limited mobility due to social norms, restricted interaction with men external to their societal circle and limited access to finance to purchase seeds, women find services offered by the CSB at the village level more viable and preferred, thereby also reducing external dependencies. Access to the seeds within the village also aids in independent decision-making.

Effective communication and branding: From case studies and secondary data sources it is evident that CSBs adopt two strategies to ensure seed access: organizing community seed fairs and mainstreaming varieties/landraces through Self Help Group (SHG) federations/ Farmer Producer Organizations (FPOs). They also establish horizontal social networks for community labor-sharing, particularly among women. Women prefer these informal pathways for information and seed delivery, while men establish their networks through more formal/conventional communication media, that is, mobile phones, agro-input dealers, and non-governmental organizations.

Conducive policy and legal environment: There are several policies governing seeds in India. However, as of now, there are no specific guidelines and support measures designed for CSBs. On the other hand, the Protection of Plant Varieties and Farmers Rights (PPVFR) Act 2001, enables CSBs to guide farmers in getting due rewards and recognition for their contributions, either through ownership (intellectual property rights and claim benefit sharing) or stewardship approaches (recognizing the contribution of farmers in the innovation of crop genetic resources) (Ramanna and Andersen, 2022). As per the available records with the PPVFR authority, till date, nine community awards and 62 individual awards have been conferred. Within this, under the category of community awards, only two CSBs and four women (of 62 individuals) have received awards and recognition despite the key role played by CSBs and women in seed management and on-farm conservation. Also, the in-depth studies revealed that promoting organizations do not have adequate knowledge and access to resources related to either the PPVFR Act or the National Biodiversity Act.

Impact of the CSBs: Besides the primary goals, the CSBs support in strengthening agroecological principles (through mixed farming, intercropping, and sustainable/organic production practices) and

community's livelihoods for better food and nutrition security. The CSBs served as a platform to build the value chain and link it with markets, reviving social networks, and promoting leadership and agency of women as guardians of seeds/ seed mothers, reducing inequalities and promoting innovative social enterprises for improved food security and livelihoods.

KEY CHALLENGES

Sustainability of CSBs: The sustainability of CSBs is often affected by technical and operational challenges, including economic, institutional, social, and political factors. Most of them are initiated with support from external agencies and face challenges when it is withdrawn. A local management committee is formed to manage the functions of CSBs at a basic level while from the institutionalization perspective, it is increasingly mainstreamed with SHG federations or farmer collectives. However, here continuous promotion of collective effort by augmenting social capital is a must for its effective function.

Nurturing the social capital of the farmers who access seeds from CSB is crucial for its sustenance. Seed loan and exchange concepts in CSBs primarily depend on the close horizontal network among farmers. Also, the management of the CSB by the community member-based committees depends on social relations and networks for its sustained actions. These types of CSBs are built on the base of social capital, which plays a critical role in shaping the behaviour of the farmers in returning the borrowed seeds. In such cases, the annual community seed festivals and seed fairs provide the platform for them to return the seeds to the bank.

An emerging trend of individual seed savers; widening gender inequalities: In the areas where CSBs are not functional (when project support is withdrawn or withdrawal of promoting organization), it is seen that a cadre of individual leadership is evolving as seed producers, as seed savers/ seed mothers/ seed saviours/ seed custodian farmers. Such cases show a clear gender dimension; compared to men, women who evolve as individual seed mothers/savers are less when the systems changed from community to individual focus, which are also crop specific.

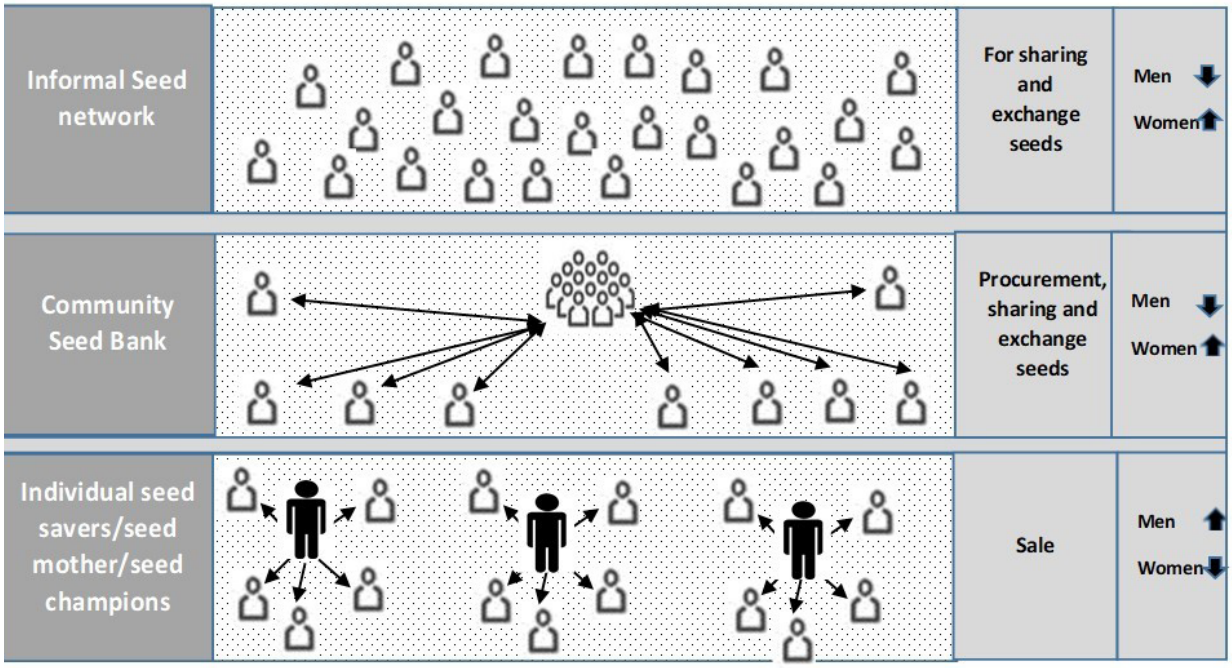

Fig 1. Evolution of the informal seed systems

Programmatic/longer-term support: Although considerable efforts have been made by CSB to promote institutions/organizations in conserving valuable crop genetic resources and promoting community-based knowledge management practices, the lack of long-term funding support limits the gains built by these CSBs in in-situ conservation of crop genetic resources. Also, at present there are no nationwide database/support strategies designed to chronicle and support them in the longer run.

Promoting organizations and capacity to mainstream gender and social inclusion: In the context of increasing push towards organic or natural farming, the demand for locally adapted seeds is gaining momentum. It is encouraging that some conservation-oriented government organizations have also started adopting the CSB model to meet their specific objectives. Special programmes that promote the use of underutilized crops are also increasingly being promoted by state governments (eg Millets Mission, Pulses Mission, Oil Seeds Mission etc). Such programmes are also adopting the community seed-centric approach as a pathway to promote seed information and delivery pathways. However, there is a need to invest in building the capacity of the promoting organizations to integrate gender capacity building and empowerment in the plan, both in implementation and measuring gendered outcomes.

Capacity of the promoting organization to facilitate farmer's rights: Another critical area requiring attention and investment is building and promoting the organizational capacity to characterize plant varieties/landraces according to Distinctiveness, Uniformity, and Stability (DUS) standards and registration under the Protection of Plant Varieties and Farmers' Rights Act (PPVFRA) to recognize due contributions of farmers. This empowers CSBs to claim ownership of unique landraces/varieties and necessitates adopting a gendered approach to document and recognize contribution (s) by women.

Recognition of CSBs in national seed policies and national-level crop genetic resources management systems: The current seed policies of the Government of India have not recognized the CSBs as a community-based institution promoting seed access via informal seed systems. Similarly, the strength of CSBs in maintaining in-situ on-farm conservation of crop genetic resources is not fully mainstreamed as a strategy in the plant genetic resources management framework. The recognition of such efforts at the policy level will motivate and recognize such innovative actions of the CSBs in in-situ crop genetic resources conservation.

RECOMMENDATIONS AND WAY FORWARD

1. **Gender-sensitive support services to strengthen CSBs and associated seed networks:** Women farmers need technical guidance from facilitating organizations to link and connect horizontally and also with external stakeholders vertically due to their limited access to information channels and institutional linkages. Men need technical support to strengthen their network using digital social media and institutional linkages to improve farmer varieties and mainstream potential varieties in formal systems for wider access.
2. **Improving the capability of promoting organizations to ensure longer-term support to CSBs to link seed systems with livelihoods:** Long-term handholding by promoting organizations (NGOs, FPOs and network of CSBs) as well as technical support is necessary to strengthen women's role in informal seed systems as well as to enhance the uptake of suitable notified varieties in formal seed systems. Besides, technical guidance and mentoring support are required to accelerate women's participation in the local value chain by getting involved in post-production and marketing initiatives.
3. **Strengthening the capacity of the CSBs in facilitating farmers' rights:** Capacity building of CSBs in the characterization of varieties as per DUS (Distinctness, Uniformity and Stability) standards and registration of varieties under the PPVFR Act is an area that needs attention and investment. This will facilitate ownership of the unique landraces/varieties they have maintained over decades. In addition, enabling support is required to obtain a Geographical Indication (GI) tag based on product/varietal uniqueness and innovation. In doing so, technical guidance is needed to adopt a gendered approach, to enable documentation and recognition of women's contributions and unique traditional knowledge under the stewardship process.
4. **Developing guidelines to mainstream gender in CSB operation:** Evolving a set of guidelines to promote gender-responsive actions in both CSB management and operations is imperative. There is also a need to build the capacities of the promoting organizations to mainstream gender during the design and implementation phases of the CSB. Here, building the capacity of government agencies assumes importance as they are increasingly engaged in promoting either organic farming or natural farming processes and practices. CSBs have been promoted by government agencies like the Department of Agriculture under state/national millet missions or for organic farming and by state Biodiversity Boards to boost agro-biodiversity and natural farming at the village level. Under such initiatives, the contributions of women in seed management can be acknowledged by formally recognizing them in leadership positions in CSB management and operations. As most state governments (Odisha, Andhra Pradesh, Tamil Nadu, Karnataka, Maharashtra, Gujarat, and Jharkhand) are promoting organic or natural farming, reviving the cultivation of traditional varieties and landraces gain more importance.
5. **Integrating and mainstreaming CSBs in seed policies:** As community-based seed systems are largely working with crops of women's preference, the appropriate institutional mechanisms and operating frameworks under the seed policies to enable their agency and leadership are needed. Exposure visits, interaction with technical agencies, availability of experienced peer group models, capacity building for various activities of seed quality management and participatory crop improvement processes will drive women to make strategic decisions to borrow seeds, cultivate and return them without much external dependence.
6. **Developing a database/portal for CSBs at the state/national level:** Currently, information about CSBs is scattered and there are no formal databases recording and collating their function and crop genetic resource management strategies at a national level. Many CSBs deal with unique, locally adapted, climate-risk-tolerant crop genetic resources. Such information is not linked to centralised national gene banks. The strength of the CSBs can be harnessed by the National Bureau of Plant Genetic Resources to manage its continuous cultivation via in-situ conditions in partnership mode. Digital tools can be effectively used along with Geographical Information Systems (GIS) to dynamically manage information with farmers' participation.
7. **Engaging youth in CSB management practices:** Promoting youth engagement in CSB management

by building their knowledge and skill on seed management and nudging entrepreneurship by bringing new opportunities in local value chains, linking with farmers' rights and geographical identity is also crucial.

Advancing and augmenting farm-level crop diversity is one of the proven strategies to strengthen food system resilience and attain household food and nutrition security and dietary diversity among vulnerable farming households. The evidence gathered in this study shows that CSBs are relevant community-based institutions in the informal seed systems that support women and marginalised farmers in accessing locally suitable seeds of crops and associated knowledge. For such actions to be sustainable in the longer term, there is a need to promote a gender-sensitive and responsive approach while promoting CSBs in India, with adequate recognition in the policy space.

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