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Empowering local food security: A systematic review of community grain banks

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Abstract

Community food systems, exemplified by initiatives like community grain banks (CGBs), play a crucial role in achieving Sustainable Development Goal 2 (SDG 2), which aims to achieve zero hunger and ensure food security by 2030. This paper draws upon a systematic review of the literature on CGBs to emphasize the relevance of community institutions in enhancing local food security. Adhering to Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) guidelines, this paper reviews 16 academic articles, two theses, and 19 online sources. The study reveals that CGBs offer immediate relief during food shortages, empower women, stabilize farmers' income, reduce debt burdens, foster social trust, and enhance community resilience. This review highlights the need for international stakeholders to prioritize supporting CGBs to preserve the self-sustaining systems. Tailoring CGB designs to community-specific needs could significantly enhance local food security, offering actionable strategies to mitigate severe food insecurity globally and regionally.

Keywords

community grain banks, local food security, farmer wellbeing, women's empowerment, systematic literature review

Introduction

Food is essential for sustaining all life on the planet; thus, ensuring food security is crucial for the overall wellbeing of humans. The concept of food security emerged widely at the World Food Summit in 1996, where it is defined by the Food and Agricultural Organization of the United Nations (FAO) as "Food security exists when all people have physical, social, and economic access to sufficient, safe, and nutritious needs at all times to meet their dietary needs and food preferences for an active and healthy lifestyle" (FAO, 1996, p. 2). Since then, the research and analysis of food security have been continuously expanding, and

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recently, they have moved from a global-level analysis to local levels with a focus on communities and households (Akbari et al., 2022). Subsequently, the role of the local became crucial in fulfilling the global Millennium Development Goals (MDGs) until 2015 and continues to be vital in advancing the Sustainable Development Goals (SDGs) today. SDG 2 aims to achieve zero hunger and access to safe and nutritious food for all people by 2023 (United Nations, 2015). However, achieving this goal appears to be a distant aspiration, as global food security trends have been static or reversing since the COVID-19 pandemic. As per the *Sustainable Development Goals Report* of 2024, around 29.6% of the global population were moderately to severely food insecure in 2022 (United Nations, 2024), and the trends of SDG 2 in different parts of the world have either remained static or experienced reversals since 2020. The *State of Food Security and Nutrition in the World* (SOFI) report revealed that in 2022, approximately 122 million additional people worldwide faced food insecurity compared to the pre-pandemic period due to the impact of the pandemic along with climate shocks and war-like conflicts (FAO et al., 2023). Additionally, the reports highlight that there has been a rise in the cost of maintaining a healthy diet and a reduction in the affordability of healthy and nutritious diets, especially in the Asian and African regions. Moreover, the self-sustaining practices among rural communities of these regions are disappearing, and they are increasingly becoming dependent on national and global markets for their food supply (Woodhill et al., 2022).

Addressing the problems highlighted in these reports requires more robust solutions to achieve zero hunger and ensure food and nutritional security, particularly by revitalizing local community food systems. Community food systems, rooted at the local level, operate on the principles of democracy and sustainability (Borsellino et al., 2024). They aim to be economically viable for local communities while enhancing social cohesion, trust, and democracy (Feenstra, 1997). Additionally, they foster food sovereignty among the community members (Leventon & Laudan, 2017). While there is growing research on local food systems, the research remains unevenly distributed, focusing more on the production and consumption aspects (Kang et al., 2022) than the social and institutional aspects. However, local institutions like a community grain bank are vital in addressing these dynamics. A CGB not only engages the community in grain credit circulation and grain credit creation but enhances community resilience and self-reliance and promotes stability in community food security dynamics in local food systems (Bhattamishra, 2007; Commandeur et al., 2016; Reji, 2013). In consideration of the need to emphasize the institutional aspect of the community food system, this paper focuses on reviewing the literature on CGBs using a systematic literature review approach.

The paper has three aims. The first is to contribute to enhanced clarity around the concept of a community grain bank and present a comprehensive overview of current understanding and knowledge about CGBs from the existing literature. The second aim is to identify and critically evaluate the interrelated and divergent epistemological strands of research and discuss their implications on food policy research and practices. The third aim is to lay out the policy framework and outline the scope for future research in this area. In pursuing these goals, the review adhered to the Preferred Reporting Items for Systematic Review and Meta-Analysis (PRISMA) 2020 guidelines, ensuring a systematic and structured approach to explore CGBs comprehensively (Page et al., 2021).

Following the introduction, the structure of the article is organized as follows. In section 2, the article extensively explains the methods employed for systematic literature review. It outlines the specific approach and techniques used to gather and analyze the relevant literature around CGBs. The following section is dedicated to the systematic synthesis of literature. The synthesis is organized into five interrelated key topics that recur consistently throughout the literature. Synthesis aims to provide central insights and arguments identified in the literature for each topic. In the next section, the article discusses research gaps, critically assesses the literature synthesis, and provides direction for future research, followed by a discussion and the limitations of this review article. The last section serves as the article's conclusion and provides policy guidelines and future research scopes.

Methods and Approach

I conducted a systematic literature review for this study, following the updated PRISMA data screening and selection guidelines of 2020 (Page et al., 2021). A systematic review involves systematic, structured, and methodical identification, collection, and analysis of available literature and information within a specific context (Mwamfupe Davis et al., 2014). This approach was chosen over other review methods due to its well-defined, structured, and stepwise approach, which enhances the research reliability and increases the trustworthiness of the research claims (Gough et al., 2017). By meticulously adhering to the PRISMA 2020 guidelines, including the use of a detailed flow chart diagram to track study selection and comprehensive reporting of the included and excluded studies, this review ensures the findings are replicable, presented with clarity and transparency, and free from bias (Petticrew & Roberts, 2008).

The literature search process was conducted using Publish or Perish software. Scopus, Semantic Scholar, Web of Science, and Google Scholar were the primary search engines used in Publish and Perish for literature searches. Additionally, news articles, blogs, and the United Nations and World Bank websites were searched via the Google search engine to find up-to-date information about CGBs, as there is a dearth of academic literature research on CGBs (Li et al., 2021). Based on my initial practical knowledge of CGBs, various keywords and search phrases were chosen to search and collect the corpus of studies. The search terms used are categorized into four categories:

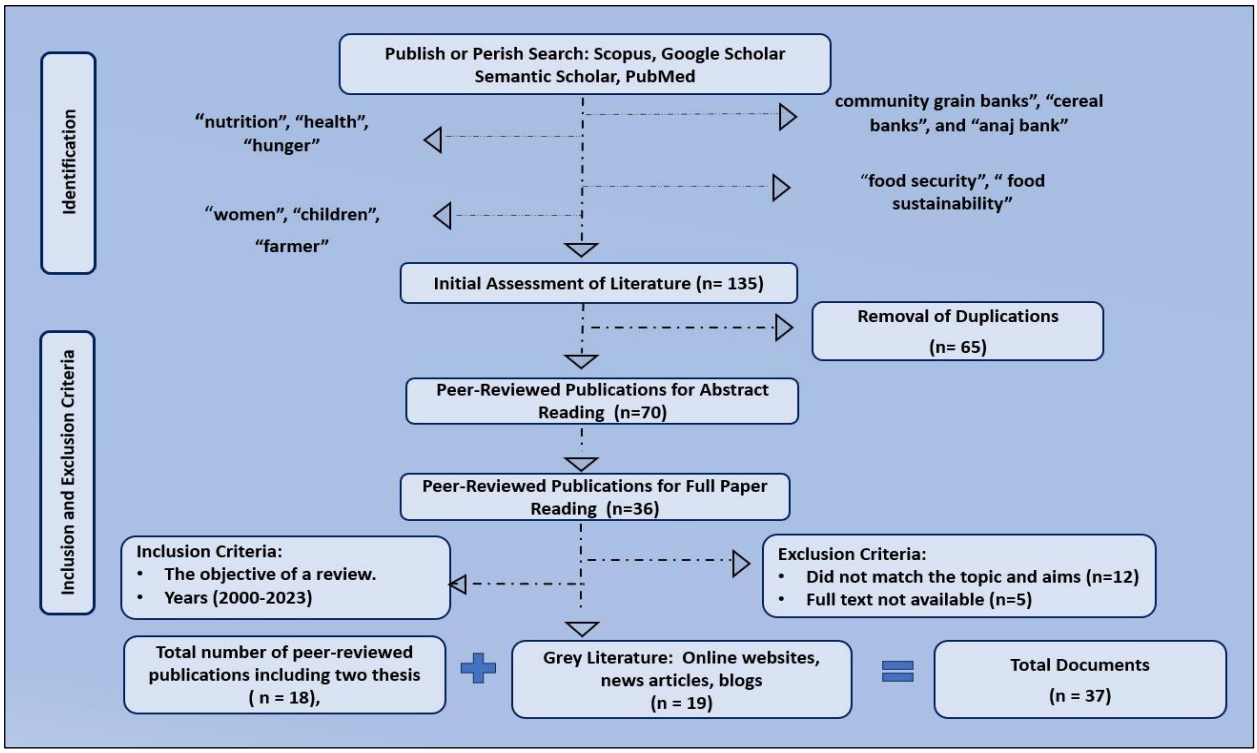
Category I: "community grain banks", "cereal banks", "anaj bank"
Category II: "food security" and "food sustainability"
Category III: "nutrition", "health", "hunger"
Category IV: "women", "children", "farmer"

Using the Boolean search operators such as AND, OR, and NOT, the above categories were mixed within and in between the categories to expand the search horizon and streamline the searches for more relevant results (Hollier, 2020). Further, keywords with suffixes or prefixes such as "food secure*" and "grain bank" were used alongside each category to get the targeted literature and maximize the chances of obtaining desired results. The selection of literature through these databases followed the stepwise approach to include and exclude the data (Figure 1). Around 135 peer-reviewed articles were extracted as an Excel file from Publish or Perish. The titles of all the articles were initially scanned, duplicates were removed, and reports were filtered for abstract reading. After reviewing the abstracts, 36 articles were read in their entirety, and inclusion and exclusion criteria were applied to form the final body of literature. This involved a manual selection process to ensure all publications contained relevant empirical, theoretical, and substantive content on CGBs

In addition, grey literature was also retrieved from online blogs and news articles using similar Boolean operators to refine the search. The key term "community grain bank" was combined with different geographic locations, such as "community grain banks AND South Asia." The first five to six pages on Google were reviewed for each search, totalling approximately 280 results. Additionally, search settings were adjusted to filter results by date to focus on the most recent articles. This thorough approach facilitated a robust and comprehensive collection of relevant literature, leading to a final selection of 19 articles from grey literature for the final review. Thus, the last body of literature consists of 16 papers, two theses or dissertations, and 19 articles from other alternative sources, leading to 37 documents in total.

The preliminary literature assessment screened sources based on three primary inclusion criteria. First, the publications considered were peer-reviewed articles, conference papers, theses and dissertations, and grey literature. Second, acknowledging the dearth of relevant literature, a language restriction was not applied as a criterion. Although most of the documents were in English, one paper in Spanish was also included to broaden the geographic scope. Third, the inclusion criterion focused on the primary objective of the review, which is to explore and comprehensively analyze the literature related to CGBs. Further, the selection of literature also followed three exclusion criteria: duplication of results, literature published

Figure 1. The Stepwise Approach Followed for Data Collection



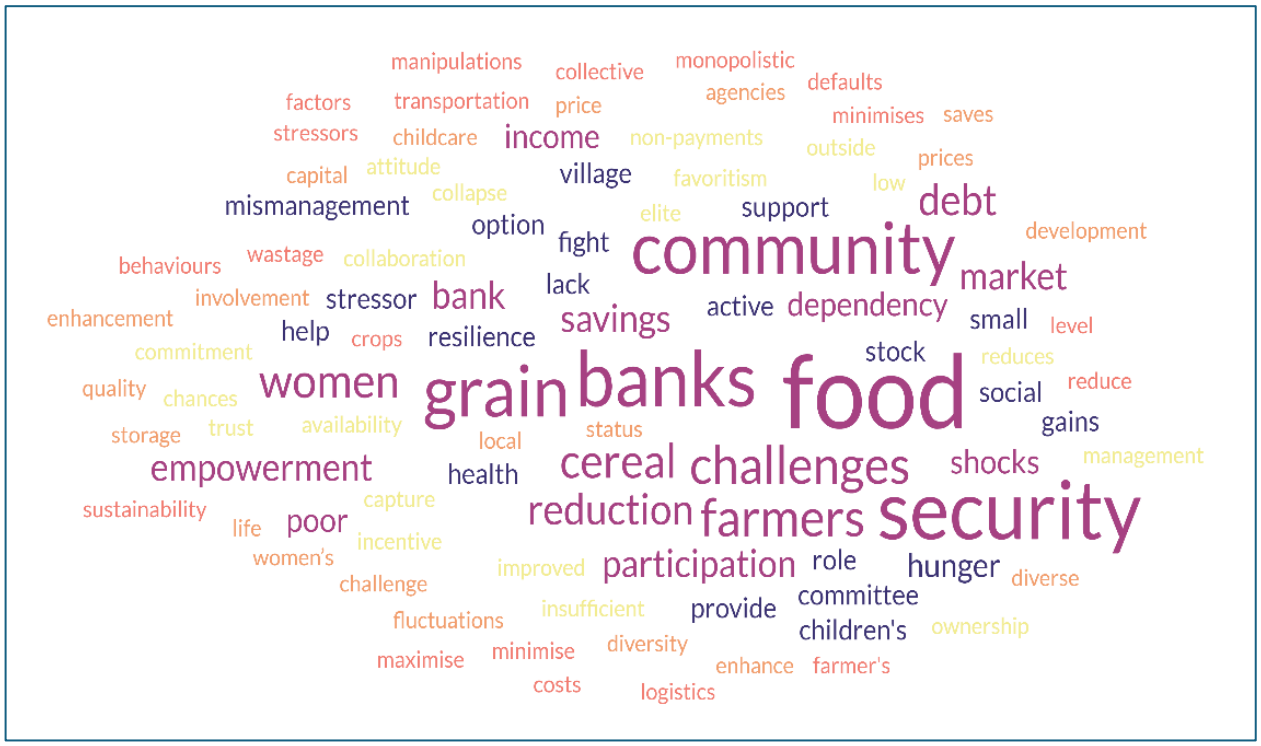
before 2000**,** and the unavailability of full texts. Literature published before 2000 was excluded to incorporate the current issues, trends, and advancements in the field of CGBs. The timeframe ensured the inclusion of the latest developments while simultaneously assessing the relevance of these local institutions.

To organize the literature review, the final peer-reviewed publications and the grey literature were carefully examined to identify and summarize the most important findings. Each key finding was then refined into keywords, such as food security, debt reduction, community resilience, and women's empowerment. This refinement was crucial for focusing the analysis on essential concepts that align with the overall research aims, as keywords help capture the significant findings effectively (Carrera-Rivera et al., 2022)These keywords were analyzed in depth and revisited through a recursive process (Mateos & Solé, 2009), where patterns were identified and re-evaluated to convert them into major topics for literature synthesis. The frequency of these keywords and their interconnections were systematically examined, revealing their prominence and relationships (see Figure 2). For instance, "food security" appeared 14 times, highlighting its central role in the research, while keywords like "debt reduction" and "community resilience" were also frequently discussed. By analyzing these patterns and connections, significant topics related to CGBs were identified, including challenges such as mismanagement and storage issues. These topics were then organized into clear, well-defined sections. This structured approach facilitated a thorough and coherent summary of the research both from peer-reviewed (Appendix A) and grey literature (Appendix B), presenting a clear and integrated overview of the current knowledge on CGBs, reflecting their impact on women's empowerment, farmers' accessibility to market, community development, and overall food security.

Synthesis of the Literature

The synthesis provided in this section is structured around five interrelated key themes with CGBs: (a) the grain banking concept, (b) local food security, (c) women's empowerment, (d) farmers market access, and (e) management imperatives.

Figure 2. Keywords Identified in the Field of Community Grain Banks



These themes are selected based on the re-occurrence of various literary themes. The themes are structured to provide a logical flow to the audience wherein they can easily understand the concept of CGBs and their multifaceted benefits and challenges. Within each theme, the central ideas and arguments are presented as they are found in literature.

The Grain Banking Concept: Governance, Operations and Models

The term "grain bank" suggests a function similar to financial banking, wherein it accepts deposits and provides credits in the form of grains, much like financial institutions do in cash (Li et al., 2021). Thus, a grain bank is a local community institution that procures, reserves, and sells basic food grains (Bhattamishra, 2012) and provides saving and credit services to a local community (Shija, 2010) to ensure food security throughout the year. While most of the transactions in grain banks are conducted using grains, cash transactions are not ruled out in some grain bank models (Shija, 2010). Grain banks, while not widespread institutions around the globe, are commonly found in many Asian and African regions, often with different names, such as cereal banks in countries like Tanzania, Kenya and Ghana (Commandeur et al., 2016; Eibisch, 2015; Mwaura et al., 2012),and anaj banks and grain gola in countries like India and Bangladesh (Bhattamishra, 2007; Khan, 2017; Misra, 2014; A. Singh, 2020).

The concept of grain banks is not new and has been a part of traditional culture among many communities. However, the conventional idea of grain banks gradually disappeared (Bhattamishra, 2012), only to resurface in a modified form shaped by prevailing social-economic and regional contexts. The existing grain banks across the regions are mostly initiated and initially funded by governments (P. Singh, 2014), local nongovernmental organizations (NGOs; Commandeur et al., 2016; N. Singh, 2021), and global organizations like the World Bank and United Nations (Food Security Information Network [FSIN] & Global Network Against Food Crises, 2023; World Bank, 2019) by mobilizing the local communities. They are established with or without the necessity for

contributions from member households (Bhattamishra, 2007), and thereafter they are managed by members themselves, making them an entirely community-driven system (A. Pandey, 2023).

While the core principle of all the CGBs, that is, the circulation of grains, remains the same, their operation mechanisms vary regionally. In Spain, they run as a government cooperative (Carmona & Simpson, 2019). In China, the grain banking system runs on a different business model, wherein the warehousing companies act as the primary entities while absorbing the participation of rural cooperatives, food processing companies, and the state financial sector to collaborate in various capacities (Li et al., 2021). In India, grain banks today are initiated by the government (Singh, 2014) or NGOs. However, the grain banks formed by NGOs are the most successful examples of community institutions. Grain banks are formed either by establishing new self-help groups (SHGs) or creating them within already-established SHGs (Bhattamishra, 2019; Misra, 2014; Reji, 2013; N. Singh, 2021). The process of forming a CGB starts with mobilizing the village community to discuss the role of community-based arrangements in food and nutritional security. The SHGs are then formed, generally consisting of 10 to 30 women from village households, with the specific number depending on the population of the village (A. Pandey, 2023; K. Pandey, 2015). Within these SHGs, members democratically appoint a managing committee for the grain bank, mainly consisting of a co-coordinator and subcoordinator. Following this, local nonprofit organizations offer initial assistance with storage containers and a grain supply to set up the CGB.

Each member of the village community is encouraged to make a modest grain contribution. Once established, the grain circulation process starts, and member households become eligible to take grain loans from the CGB anytime of the year when there is a shortage of grain within a household to fulfill its food needs. The member pays back the grain loan with a predecided interest rate, after the harvest period (Bhattamishra, 2007; A. Pandey, 2023). While CGB membership is the eligibility criterion for availing loans, some banks lend loans to nonmembers in need. However, the managing committee maintains records and disburses grains; the call for such a decision is collective, where all members' opinions count (Bhattamishra, 2019; Krishna, 2021).

In most African countries, the CGB model of grain banks has some regional and geographical differences from India's. Most of the grain or cereal banks in countries like Cameroon, Nigeria, Tanzania, and Niger are initiated by local NGOs that were established with the help of community participation (Carmona & Simpson, 2019; Commandeur et al., 2016; Jatta, 2016; Msaki et al., 2013; Ng, 2014). Most of these banks' models exist in the rural communities of these countries. Farmers' producer organizations in Kenya run cereal banks, offering them a secure storage system for their surplus produce and providing access to better markets for selling their crops (Mwamfupe Davis, 2015). In addition, the ownership of agricultural produce remains with the farmers themselves. In Ethiopia, grain banks were formed as a community intervention to ensure nutritional security among children who are 6–23 months old. The model is unique, as it offered a barter system wherein mothers exchanged a single raw cereal crop for a mixture of various legumes and cereals (Roche et al., 2017). In Guinea-Bissau, cereal banks were introduced to shift from a monocropping to a diversified multicropping approach, with these banks serving as repositories for various cereal seeds, effectively functioning as both seed and cereal banks (Mane, 2019).

Based on the descriptions of grain bank models in various regions, it is evident that they share common goals and purposes. These shared objectives include:

- Securing a steady food supply to all, particularly in times of scarcity or lean seasons, to ensure year-round food security.
- Offering barter arrangements and, in specific models, a reliable source of income to farmers to safeguard their purchasing power parity against various natural and non-natural shocks and stressors.
- Empowering the communities to become resilient to disasters and calamities.

In the following sections, the article delves

deeper into these common goals that CGBs offer. It explains how grain banks play a pivotal role in food security and economic stability.

Community Grain Banks and Local Food Security

Today, the lost concept of CGBs has been revived by multiple stakeholders to address and combat the persistent challenges of food insecurity, especially at the level where food producers themselves face moderate to severe food insecurity. As the main aim of CBGs is to address food security issues, many studies reviewed for this article have found that they have been effectively contributing to local food security among their member households in various ways. Grain banks are unique in their form as they provide a consumption credit system (Bhattamishra, 2007) to individuals who can borrow grains for immediate food needs with the intent of repayment when their food situation improves. These grain banks within the beneficiary communities excel in creating local food reserve services and responding promptly to food shortages compared to more significant centralized food security measures, which often face transportation and distribution delays (Bhattamishra, 2019). With grain bank facilities, people can save the time they would need to travel long distances in search of food during lean seasons. Additionally, they provide safety nets during droughts and famine, which are crucial in saving households from hunger and malnutrition (Aylward, 2013).

By providing a storage facility, a CGB also provides an opportunity for farming communities to preserve various varieties of crop seeds, which eventually leads to a diversification of grain production and consumption, making it possible for the communities to reduce hunger and increase the nutritional value of their diets (Carmona & Simpson, 2019; Mane, 2019). Simultaneously, they emphasize a capability approach, which aids in motivating mothers to acquire new skills to improve their children's nutrition (Sako et al., 2018).

Studies found that grain and cereal banking reduced the significant food gap and interseasonal food price disparities (Abdourhamane, 2018; Jatta, 2016). They help avoid market price fluctuations, as they are locally managed and owned by the community (Li et al., 2021; Msaki et al., 2013; P. Singh, 2014). Moreover, the grain bank initiatives are set up mostly in homogeneous communities with uniform social, cultural, and economic backgrounds. This shared homogeneity simplifies the functioning of grain banks and becomes an effective solution to tackle food security issues on a local scale (K. Pandey, 2015). Sometimes, when a member cannot return the grain loans due to idiosyncratic shocks (medical sickness, weddings, deaths) or covariate shocks (droughts, floods, crop failures), they get an extension to repay their loans and do not necessarily lose their membership (Bhattamishra, 2012, 2019). The grain bank also allows them to buy additional grain loans in emergencies, reducing their dependence on village traders and lenders who provide grain credit at high interest rates (Bhattamishra, 2007; Eibisch, 2015; A. Pandey, 2023; Reji, 2013), which helps them move out of the debt trap.

Thus, the revival of CBGs today offers a promising approach to combat food insecurity. Alongside this benefit, they offer long-term, community-driven solutions for diversifying grain production, empowering communities, building resilience, and improving the well-being of vulnerable populations.

Women's Empowerment through Community Grain Banks

In a contemporary world, progress is measured not only through economic metrics but also by people's empowerment. CGBs are a simple yet powerful initiative that plays a transformative role in women's lives. Most grain or cereal banks are managed and run by women, especially in rural and agricultural setups (Aylward, 2013; Khan, 2017; Ng, 2014; Saikia, 2023; N. Singh, 2021). The longevity of a grain bank depends on the women represented in its managing committees, as women are more invested in these initiatives because they prioritize the nutritional and physical well-being of their children and families (Aylward, 2013; Bhattamishra, 2019; Sako et al., 2018; A. Singh, 2020). This offers women more control over household resources and decision-making, particularly related to household food security (Bhattamishra, 2019). As a result, they have the potential to break the

patriarchal system that restricts women from making decisions for their households (A. Singh, 2020).

Additionally, these initiatives provide training and capacity-building to boost women's engagement and confidence in undertaking income-generating activities, promoting an equitable decision-making process within the community (Ng, 2014; Reji, 2013). Even the interest rates on loaned grains are decided by the members collectively (Chakravorty et al., 2018). Several studies discovered that having more women on grain bank committees is linked to a lower probability of failure (Bhattamishra, 2019; A. Singh, 2020; N. Singh, 2021).

Grain banks enable women to collectively take the lead, allowing them to engage in initiatives such as community farming for self-sustained livelihoods. This collective effort promotes their self-determination, catalyzes their empowerment, and fosters a sense of solidarity and mutual support that enables them to shift from passive recipients to proactive agents of change. This transformation facilitates their individual growth and is crucial in advancing their community's food security, thereby lessening their reliance on powerful landlords (Bhattamishra, 2007; Khan, 2017; Sako et al., 2018). As women gain social recognition for their active involvement in grain bank initiatives, their motivation to further expand and strengthen these banks continues to grow (Sako et al., 2018). This also encourages disciplined membership, with women being more likely to repay the loan promptly and without default (Bhattamishra, 2019). Therefore, women's management of grain banks is preferred due to their perceived transparency in financial management and their skillfulness in handling food supplies, especially during crises (Mwamfupe Davis et al., 2014; P. Singh, 2014).

In many developing countries, women primarily shoulder the responsibility of processing grains into raw food and then preparing cooked meals, which often involves labor-intensive tasks such as threshing, husking, shelling, and milling, leading to the premature aging of women. CGBs, as a communal measure, play a crucial role in alleviating this burden, where everyone works together to prevent the overburdening of a single woman. This collective effort contributes to reducing the physical toll on women and fosters a more equitable distribution of labor (Shija, 2010). Moreover, when husbands travel to urban areas for employment with erratic wages and payments, women frequently take on the sole task of providing for the family's food needs. In such a situation, a grain bank provides a sense of security and acts as a form of capital to safeguard against food scarcity and the vulnerabilities that come with it (Krishna, 2021; Misra, 2014). Additionally, this collective effort proved invaluable during the COVID-19 pandemic, as it allowed the migrants to return home with faith that grain banks would meet their food requirements (N. Singh, 2021).

Thus, CGBs impact goes beyond the providing local granaries and empowers women to make decisions for themselves and their households, contributing to household food security.

Community Grain Banks and Farmers Market Access

In many developing regions, despite technological advancements and innovations, the depletion of natural and land resources has contributed to a growing number of small and marginal farmers (Altieri & Koohafkan, 2008). Despite serving as the backbone of the agriculture sector, these farmers often face a battle to put food on their tables. Thus, one of the aims of CGBs is to secure food security for these farming communities and prevent them from selling their produce at lower prices and buying back at high prices (Msaki et al., 2013). In this section, the article explores the role of CGB initiatives in providing better market access to farming communities.

CGB institutional arrangements offer significant support to farmers on multiple fronts. Farmers can use these banks for the institutional retention of their surplus food grains, allowing for better management of their produce for future use and sale (Chakravorty et al., 2018; Li et al., 2021). Grain banks safeguard farmers from the deceptive practices of hoarders, cartels, and traders, which frequently result in elevated food prices and diminished farmer income (Njagi, 2018). This protective function is particularly crucial because it prevents farmers from experiencing fluctuations in their food security during the lean season when they

often turn from net sellers to net buyers (Jatta, 2016). Grain banks thus act as a financial buffer for vulnerable and affected farmers against adverse market dynamics, provide stability, and ensure their well-being throughout the year (Carmona & Simpson, 2019).

The grain banks work as mutually beneficial arrangements that make them efficient local institutions, where the farmers gather to produce and store grains for their livelihoods (Li et al., 2021) instead of each farmer operating independently and competing against one another (Msaki et al., 2013). The farmers' association with the centralized CGB storage serves a dual purpose by offering farmers an alternative option for selling their grain at times other than harvest when prices tend to be lower. In doing so, they contribute to food security in the community and simultaneously enhance their bargaining power to play a crucial role in market regulation and preventing harvest losses (Commandeur et al., 2016). Additionally, membership opens up income opportunities to these farmers, and they provide better prices to the local caterers, reducing their transportation costs and dependence on traders (Eibisch, 2015). Research has shown that an association of small and marginal farmers, including CGBs, serves as an effective means for the farmers to develop essential skills in problem-solving and small-scale enterprise mangement (Shija, 2010). Many reports have shown that in the absence of community-based arrangements in rural locations, for various reasons small farmers are often forced to borrow grains or money from big landlords and moneylenders at a high interest rate to fulfill their basic needs. In such a scenario, CGBs reduce dependence on big landlords and moneylenders to secure their households/community food (Bhattamishra, 2007; N. Singh, 2021). Grain banks also play a crucial role in accelerating agricultural recovery by enabling farmers to cultivate their fields near their family rather than migrate somewhere else in search of work.

In essence, CGBs play a crucial role in supporting farming communities. They protect farmers from market fluctuations, enhance their bargaining power, and ensure food security for the community. By fostering cooperation among farmers and reducing dependence on external sources, CGBs promote self-reliance in farming communities and thus contribute to their wellbeing.

Management Imperatives of Community Grain Banks

To realize Zero Hunger (SDG 2), promote food security, and foster sustainable agriculture at the local community level, (CGBs have emerged as significant institutions. While these institutions play a critical role in alleviating the impact of food scarcity, particularly during the lean season, they are not exempt from various challenges. The main challenges that CGBs face include a complex management system, human resource limitations, and concerns about sustainability (Roche et al., 2017). In rural settings, the widespread illiteracy among CGB managing teams presents a formidable obstacle to effective record-keeping and management of grain quantities., This situation can lead to misappropriation and pave the way for dominance by powerful individuals, resulting in favoritism toward certain members of the community (A. Singh, 2020). Additionally, grain banks are often kept in private houses with no dedicated storage facilities, making them unsuitable for community usage (P. Singh, 2014), especially in the absence of strong leadership and cohesive social structures (Reji, 2013).

Consequently, mismanagement, misappropriation, and defaults have become the prime reasons for the failure of grain banks (Bhattamishra, 2012). Most grain banks have a stock of a single grain and lack a diverse range of food such as pulses, oil, and spices, making them insufficient to support food and nutritional security (Chakravorty et al., 2018; Khedkar, 2008; Shija, 2010). While they have capabilities of improving nutritional status among infant and children (Roche et al., 2017), at time they fail to improve children's nutrition and health, due of the lack of nutritional diversity (Bhattamishra, 2007; Singh, 2014). Sometimes, questions are raised about the bartering model's long-term viability, especially in the context of the participation of landless agricultural laborers and mothers (Roche et al., 2017). The inability to deposit a sufficient quantity of cereals and the subsequent inability to access loans from CGBs are attributed

to the cycle of food poverty in which many farmers are trapped (Commandeur et al., 2016).

The initial lack of clarity about the grain banking concept to its members hampers their ability to understand its financial and social benefits (Mwamfupe Davis, 2015). The farmers' participation in these grain banks is limited by factors like existing organizational memberships and harvest levels, which hinder the broader adoption of CGBs, presenting a challenge in achieving inclusivity within these institutions (Mwaura et al., 2012). Additionally, weak monitoring practices and a lack of systematic evidence prevent timely adjustments in the successful implementation of programs (Sako et al., 2018). Moreover, these institutions are not necessarily sustainable, often experiencing a gradual depletion of resources and disappearance of external support from governmental and non-governmental agencies (Msaki et al., 2013). While women get social recognition through grain banks, their motivation collapses as they lack incentives (Roche et al., 2017). CGBs, when working as a business model, face greater chances of monopolistic behaviour of dominating stakeholders and more market manipulation (Li et al., 2021).

These challenges, identified by various studies, are crucial for policymakers and implementors in strengthening the CGBs to enhance local food security. Despite the vital role of CGBs in addressing food security issues, they face obstacles and need comprehensive solutions that can improve their effectiveness and longevity. By addressing such challenges, CGBs can be enhanced as a community arrangement and continue their mission of promoting food security and alleviating poverty at the local level.

Discussion

The synthesis of literature presented in the previous section highlights that significant research on grain and cereal banks has emerged over the last two decades. This review demonstrates a substantial association between grain and cereal banks and local food security. Nonetheless, it is worth noting that research about grain banks is still in its initial phases, and several unanswered questions and challenges persist. This section will summarize the review's key findings and attempt to identify the research gaps that can give potential scope for future research.

The literature reviewed reveals that CGBs have been instrumental in ensuring year-round food security at the local level. They serve as reliance food sources during lean seasons (A. Singh, 2020), providing a safety net for community members (Bhattamishra, 2007; K. Pandey, 2015; Roche et al., 2017; A. Singh, 2020). This is of paramount importance in areas where food access can be uncertain. The CGBs contribute to the economic stability of a household as they offer a consumption credit system, allowing them to borrow grains for immediate needs and repay them during the harvest when their food security improves. Moreover, CGBs serve as safety nets during droughts and famines, preventing households from experiencing hunger (Bhattamishra, 2007). They have also successfully reduced food price disparities and market price fluctuations, saving households from the cycle of debt and dependence on external lenders, and subsequently increased their purchasing power parity (Li et al., 2021; Msaki et al., 2013; Mwaura et al., 2012). However, despite these promising findings on the link between CGBs and local food security, there is a need for future research to explore the long-term sustainability and scalability of CGBs and their impact on other aspects of regional food security, such as dietary diversity and nutritional outcome.

The empowerment of women emerged as a prominent theme in this review. CGBs have proven to be a catalyst for women's empowerment, particularly in rural and agricultural settings. As women run most grain banks, they often take on leadership roles that empower them to make decisions related to household food security (Aylward, 2013; Reji, 2013; N. Singh, 2021). This shift in decision-making authority challenges traditional patriarchal systems and promotes equitable resource management within households and communities. Furthermore, CGBs provide training and capacity-building for women, boosting their confidence in income-generating activities and collectively engaging in initiatives like community farming, promoting self-determination and fostering a sense of solidarity (N. Singh, 2021). Women's active participation in CGBs results in more trans-

parent financial management and skilful handling of food supplies, contributing to the institution's overall success. While these findings highlight the positive impact of women's engagement in CGBs, future research should delve into the long-term effects of women's empowerment on their social and economic status and reflect on the intersectionality and power dynamics within this group.

Additionally, the review article also reflected on farmers' well-being through CGBs. CGBs have been identified as protectors and supporters of farmers' welfare. By offering collective bargaining and alternatives to store their grains for longer after the harvest period, CGBs contribute to the economic welfare of farming communities (Commandeur et al., 2016; Sako et al., 2018), which reduces their dependence on moneylenders (Bhattamishra 2007; Li et al., 2021; Njagi, 2018), traders (Li et al., 2021) and cartels (Njagi, 2018). Thus, CGBs help them become self-reliant in food production and consumption and provide them with skills to engage in additional income opportunities that can take shape in small-scale agricultural enterprises. However, farmers' overall well-being cannot solely depend on one community institution. Thus, future research can focus on quantifying the economic and social impact of CGBs, including changes in income, agricultural practices, and overall well-being, considering other crucial factors that play their roles.

The review also discusses challenges identified in existing literature, from mismanagement and misappropriation (Li et al., 2021) to dominance of powerful individuals (A. Singh, 2020) to lack of food diversity (P. Singh, 2014). Despite having found common challenges in different models, the reviewed studies have overlooked the opportunity to systematically map and analyze the similarities and differences. Analyzing these institutions could produce solutions to strengthen them by establishing a universally applicable core set of principles. Henceforth, research can focus on this comparative approach, enabling a better understanding of these challenges and the development of adaptable, effective models for diverse communities.

In light of the above discussion on the reviewed literature, it is evident that CGBs hold substantial potential to enhance local food security, women's empowerment, and farmers' well-being. Nevertheless, it also calls for continued research to unravel their full potential and address ongoing challenges. By addressing the research gaps and exploring the future research opportunities outlined in this review, we can gain deeper insights into the potential of CGBs. This, in turn, will enable us to formulate more effective policies and initiatives to enhance food security and foster community development.

Limitations

While presenting a comprehensive overview of CGBs, this review article acknowledges the presence of various limitations. First, due to a dearth of peer-reviewed literature on grain banks, the review may exhibit selection bias as it incorporated many news articles, blogs, and documents from grey literature that generally lack critical evaluation compared to peer-reviewed articles. Second, geographical bias may exist as most of the literature review covers developing nations, potentially failing to encompass the full spectrum of CGB models and experiences in the developed world. Third, a language bias emerged, as most of the reviewed literature was in English, with one Spanish article included. However, translating the Spanish paper to English using Google Translate failed to provide a complete understanding of grain banks, undermining the understanding of grain banks in the Western world. Fourth, one significant limitation of this review is the absence of a comparative analysis of different models of CGBs that are evolving differently in changing socio-economic and environmental conditions. Last, the review does not delve into the intersectionalities of gender, class, and caste dynamics. These points not only highlight the limitations of this review article but also open the avenues for future research.

Conclusion

This systematic review is the first of its kind to comprehensively study and describe community grain banks in the context of community food systems, thereby making a significant contribution to the literature on community institutions for local food systems. While the importance of local food systems, including food banks, has been recognized

worldwide, the knowledge and research on grain and cereal banks remain scattered and fragmented. Through this review, efforts have been made to synthesize and integrate these scattered pieces of literature to present a cohesive and thorough understanding of CGBs. This is particularly important now due to the need to revive self-sustaining practices and local institutions, thereby advancing efforts toward zero hunger goals.

The synthesis of the literature divided into five key topics sheds light on the diverse models and operational mechanisms of CGBs, their positive impacts on local food security, the transformative role they can play in women's lives, their protection of farmers against market fluctuations, and the challenges that CGBs encounter. Critically reflecting on each theme, the article suggests that research on CGBs should be interdisciplinary, collaborative, and focused on practical solutions, since community-driven institutions have the potential to make communities more progressive and resilient. Food policy research plays a pivotal role in unlocking this potential.

Policy Recommendation and Future Research Scope

Drawing on the comprehensive review findings and synthesized literature, this review paper offers targeted policy recommendations for CGBs across three critical areas: design, execution, and sustainability.

1. **Design of Community Grain Banks:** The design phase should prioritize the establishment of robust infrastructure, including modern storage facilities and effective resource management systems (Li et al., 2021). Adopting best practices and standardized management guidelines will ensure consistency and efficiency. Additionally, fostering inclusivity in the design process will help to reflect the needs and contributions of diverse community members.

2. **Execution of Community Grain Banks:** During execution, it is crucial to provide comprehensive training and ongoing support to CGB staff to ensure effective management. Securing adequate funding and financial resources is essential for smooth operations. Special attention should be given to empowering women by supporting their leadership roles and providing necessary incentives, which can significantly enhance the effectiveness of grain banks.

3. **Sustainability of Community Grain Banks:** To ensure the sustainability of CGBs, it is essential to establish strong partnerships with government agencies, NGOs, and private-sector organizations. These partnerships can provide ongoing financial support, technical assistance, and resources. Implementing regular monitoring and evaluation processes will help adapt to changing needs and improve operations. Additionally, investing in capacity-building initiatives and promoting community engagement will enhance the resilience and long-term success of CGBs.

The policy recommendations and research gaps highlighted in the discussion section above outline the essential directions for future research on CGBs. Future studies can focus on evaluating the impact of robust infrastructure and effective resource management on the operational efficiency of CGBs. Research could also explore how inclusive design processes, comprehensive staff training, adequate funding, and support for women's leadership roles influence the success of CGBs. Additionally, investigating how partnerships with stakeholders contribute to the sustainability of CGBs, including their role in providing financial support and technical assistance, is crucial. Future research may also investigate the integration of advanced technologies in CGB operations and assess how community engagement can enhance the resilience and long-term success of these institutions. Furthermore, studying how CGB models can be adapted to specific geographic regions and local contexts will be essential in ensuring their relevance and effectiveness. Addressing these areas will contribute to optimizing CGB models and improving community-driven strategies for local food security.

Reflexivity Statement

As the author of this systematic review on community grain banks and local food security, I acknowledge that my academic background and field experience may have influenced the research approach. My direct observations of grain banks in practice, combined with my interest in food security, informed the selection of studies, interpretation of data, and framing of conclusions. While this review adhered to rigorous systematic review guidelines, my perspective on the practical roles of grain banks in enhancing food security may have shaped the synthesis of findings and the discussion of potential implications. I have maintained objectivity and transparency throughout the review process, applying established PRISMA guidelines to minimize any bias.

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Appendix. Listing of Peer-Reviewed and Grey Literature in this Study

Table A1. Summary of Peer-Reviewed Articles on Community Grain Banks (CGBs)

Reference	Study Design	Study Location	Research Aim and/or Objective	Key Findings	Keywords
Bhattamishra (2007)	Mixed-Method	Raigad, Orissa (India)	Examine the impact of grain bank participation by household on the incidence of borrowing from private, informal moneylenders. The impact of grain bank participation by households on young children's health outcomes.	Grain banks do not have a statistically significant impact on various anthropometric measures examined, indicating that they may not be effective in improving children's health status. Grain banks have a large, statistically significant displacement effect on moneylenders, and this impact is even more effective in longer-lived grain bank villages. Grain banks are structured to offer credit for consumption credit in the form of grains, making them unsuitable as a comprehensive credit capable of addressing the potential issue of the region's underdeveloped or absent credit market.	Debt reduction Reduced dependency Savings Children's health
Bhattamishra (2012)	Mixed-Method	Block: Dasmatpur District: Koraput Orissa (India)	Exploring the reasons behind the closure of numerous grain banks in Orissa. Investigating the rationale behind continued investment in these initiatives by government and nongovernmental organizations despite a track record of failure.	Survival of grain banks appears to depend significantly on village-level factors, including social cohesion. Thus, the same design in different ecosystems may not be conducive to their sustainability. Grain banks struggle to cope with covariate risks, particularly unbalanced rainfall and crop failures. This highlights their vulnerability to weather-related shocks. The statistical model in the study revealed that grain banks in less developed villages had a higher predicted probability of survival. In addition, a higher share of women in the grain bank committee was associated with more prolonged survival. Their active role ensured the sustainability of these institutions. Mismanagement by committees was reported as the main reason for the failure of grain banks; however, there were other reasons, like storage facilities.	Shocks and stressors Village-level factors The active role of the village committee Challenge: Mismanagement
Bhattamishra (2019)	Mixed-Method	Orissa (India)	To examine the impact of grain banks on children's health. To examine the impact of borrowing from moneylenders.	Grain banks combat food shortages in Odisha. Limited short-term health impact. Provide credit alternatives and reduce reliance on moneylenders. Sanitation issues may hinder health impact. Impact variation due to sample size limitations. Potential for cost-effective, innovative solutions in remote areas.	Food security Debt reduction Reduce dependency Children's health
Carmona & Simpson (2019)	Policy Analysis	Spain	Analyze government reports on grain banks from 1912 to 1914 that showcased the nature of the failure.	In contrast to the government's negative assessment, it has been found that grain banks had a remarkable success in the 20th century and managed to navigate decades of difficulties successfully. The success of these institutions depended on various factors such as the volume of resources, community involvement, social capital, and accessibility levels.	Community involvement Social capital

Chakravorty, Joshi, Gills, Sharma, & Sharma (2018)	Review Paper	India	Review the grain bank concept in India and examine its possible advantages and disadvantages.	Grain banking benefited farmers by lowering their debt to moneylenders, fostering self-employment, and improving disaster resilience while enhancing women's role and status within families and the community. Grain banks help the villages where they exist and the neighboring villages. Thus, they serve as a potential food source for a broader community during lean seasons. They contributed to reduced migration and saved transportation costs. They are a source of pride for a community.	Farmers' income Debt reduction Women's role and status enhancement Community resilience Reduced migration
Davis, Mengersen, Bennett, & Mazerolle (2014)	Mixed-Method	Districts: Kongwa & Chamwino (Tanzania)	Evaluate the contribution of cereal banks in improving food security	Cereal banks are likely to collapse in the poorest and food-deficient areas compared to areas with ample food production. Food relief from the government and other agencies hinders the people's participation in cereal banks. Other factors responsible for its poor performance include insufficient cereal stock, decapitalization due to repayment or nonpayments of loans, and certain attitudes of members toward donor assistance.	Food security Challenges: Chances of collapse, insufficient stock, nonpayments, attitude
Jatta (2016)	Mixed-Method Study	Gambia	Assess the role of the cereal banking scheme in food and nutritional security.	Cereal banking positively impacts food and nutrition security. Reduces food price variability and the food gap by over 25%. Implementation must consider village-specific characteristics. Involves community participation and empowers communities. Proximity of banks reduces transportation and administrative costs.	Food security Sustainability Collective participation Community resilience
Khedkar (2008)	Qualitative Study	Village - Bhaguchiwadi District- Raigad, Maharashtra (India)	Identify what led to the reduced relevance of grain banks. How is the state government trying to revive them?	Grain banks received more support and worked well, whereas local Panch Committees were more robust and better coordinated. (Panch committees are the members, including ward members and the president, of a Gram Panchayat, or village council.) The impact of grain banking goes beyond food security, as its members extend their involvement to other community development programs such as land rights, land development, and housing. Grain banks are disadvantaged as they cannot meet diverse food needs.	Local committee Food security Community development Challenge: Do not provide food diversity

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Li, Zhou, Razzaq, & Wang (2021)	Case Study	Hubei Province, China	Examine the historical development of grain banks. Analyze the economic reasons behind the development of grain banks.	The establishment and operation of grain banks depend on specific conditions which are not widely prevalent. They thrive when small-scale farmers encounter limited non-agricultural employment and inadequate storage and acknowledge the significance of minimizing grain wastage. Grain banks use market conditions to maximize farmers' income by unifying procurement, employing dry storage methods, and ensuring easy access. Grain banks are crucial in supporting the government's efforts to maintain food security as they provide minimum reserves required by the government to help monitor grain stocks and flows. Alongside their role in food security, they focus on minimizing transportation and logistics costs. Grain banks, however, have specific risks, including the monopolistic behavior of different stakeholders, market manipulation, and other faults.	Minimize grain wastage Maximize farmers' income Food security Minimizes transportation and logistics costs. Challenges: Monopolistic behaviors, manipulations, defaults
Msaki, Mwenda, & Regnard (2013)	Cross-Sectional	Village: Makoja, Dodma Region (Tanzania)	Assess the importance of cereal bank on the livelihood of farming households.	Cereal banks help stabilize the local market prices as cereal banks allow farmers to sell their produce collectively. This collective strength acts as their bargaining power to negotiate the prices for their produce. Cereal banks can potentially improve farmers' income, which empowers them to invest in different aspects of their lives and thus enhance their quality of life.	Market prices Farmers' income Enhance life quality
Mwaura, Tungani, Sikuku, & Woomer (2012)	Mixed-Method	District: Bungoma, Western Kenya	Assess how well smallholders embrace cereal banks as a marketing intervention.	Despite the low enrollment rate initially, farmers started to adopt cereal banking systems, attributing this to the newness of this concept. The linkage between cereal bank membership and production level significantly influenced farmers' participation in cereal banking, as they see these associations to market surplus. Working in a group as members of cereal banks improved their perception of it. Prior experience of farmers being associated with local organizations helps them adopt new systems like cereal banks.	Community participation Farmers' market surplus
Pandey (2023)	Case Study	District: Palamu, Jharkhand (India)	Role of CGBs in mitigating the impact of drought, equity issues, and loan recovery. Investigate methods and techniques used by communities to strengthen their CGBs.	Provides workable solutions for food security. No technical external existence is needed. Promotes community ownership. Reduces dependency on moneylenders. It is merely a relief rather than a proper institution.	Food security Shocks and stressor Community empowerment Reduces debt dependency

Reji (2013)	Case Study	Village: Brujuvada District: Srikakulam, Uttar Pradesh (India)	Examine if grassroots initiatives such as CGBs are crucial in securing food security for the tribal population.	CGBs reduce the dependence of tribal communities on money-lenders and traders for food. Member households benefit from improved food availability during the lean season. CGBs empower women, promote livelihoods, and increase social trust. Beneficiaries are not passive recipients but active collaborators who identify solutions to their challenges.	Women's empowerment Improved food availability Social trust Debt reduction Active collaboration
Roche, Sako, Osendarp, Adish, & Tolossa (2017)	Qualitative Study	Ethiopia	Assess the acceptability, perceived impact, feasibility, and essential inputs to sustain local grain banks.	The community's strong appreciation for using locally sourced ingredients in the grains offered by grain banks results in higher acceptance for these institutions. Cultural significance to local food and biodiversity contributed to the strength of grain banks, as the members felt more empowered than using the food donated by outside agencies. The barter system was significant as a motivator for rural women to participate. Women valued the project's potential time savings, positively impacting mothers' involvement in childcare and other productive activities.	Women's participation Savings Childcare Local food Food security
Sako, Leerlooijer, Lelisa, Hailemariam, Brouwer, Brown, & Osendarp (2018)	Case Study	Ethiopia	Explore what promotes or hinders the successful enlargement of the grain bank project in Ethiopia's rural kebeles.	The Grain Bank Project is aligned with the National Nutrition Plan and has government support. The bartering system is appreciated for its simple process. The participatory approach fostered a sense of ownership among communities. The women's groups played an essential role in scaling up the project and were motivated by social recognition, but received little or no incentive.	Women's empowerment Food security Community participation Ownership Challenges: No incentive to women
Shija (2010)	Case Study	Dodoma region (Tanzania)	Assess the role of group-managed grain banks in ensuring rural food security for smallholder households.	The demand for food grains from grain banks has increased as smallholder households mostly rely on grain banks during the food shortage. Initiatives like grain banks are effective when small farmers know about food insecurity and collaborate to find solutions. Grain banks suffer from problems such as poor management, low member commitment, inadequate government, and poor institutional support. Services ensured by grain banks, such as food loans and grain storage and management, have contributed to positive household food security, which further contributed to the enhancement of farmers' efforts toward their agricultural activities, enhancing overall food security.	Food security Farmers' challenges: Poor management, low commitment, lack of support from outside agencies

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Singh, A. (2020)	Case Study	Block: Rampura, District: Jalaun, Uttar Pradesh (India)	Assess the role and impact of the anaj bank in alleviating hunger and improving food security in remote areas. Evaluate the effectiveness of the anaj bank in reducing hunger and improving food security.	Anaj banks promote women's engagement in organizational activities. Anaj banks give insurance against unexpected shocks and vulnerability. They encourage savings, addressing the issue of impulsive spending during post-harvest festivities. They are susceptible to challenges such as leakages, misappropriation of resources, and capture by local elites. Their success depends on effective management, addressing issues of favoritism, and potentially exploring new models to enhance their impact.	Women's empowerment Shocks and stressors Savings Food security Challenges: Mismanagement, elite capture, favoritism
Singh, P. (2014)	Policy Review	India	Review the government's Village Grain Bank scheme	The scheme aimed to protect all Below Poverty Line (BPL) families in food-deficit areas against starvation, especially during the lean season. Grain banks help indebted tribes break the cycle of dependency on moneylenders and generate surplus grain stock in food-deficit areas. Grain banks help avoid market price fluctuations as they are locally managed and owned by the community. Grain banks provide long-lasting solutions to food insecurity but also face specific challenges, including storage, uneven distribution, lack of diverse crops, etc.	Debt reduction Saves from market price fluctuations Challenges: Storage, lack of diverse crops

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Appendix A2. Summaries of Grey Literature

Author(s)	Title	Location	Summary
Abdourhamane (2018)	Cereal banks strengthen food security in Mali	Mali	The article highlights the story of a household in the eastern region of Mali who faced severe food insecurity after the death of the household breadwinner. The family managed their needs after the establishment of cereal banks. Not just food security, cereal banks empower residents by teaching them to create and lead village saving groups. This multifaceted approach addresses food needs and enhances long-term sustainability and economic resilience in these regions.
Akinfenwa (2023)	Stakeholders mull community grain bank initiative to end post-harvest losses.	Nigeria	The article highlights the post-harvest loss faced by the agricultural sector in Nigeria and the need for Community Grain Banks to curb the losses. These CGBs are run locally by farmers and can potentially alleviate seed shortages, especially during droughts. It has been argued that CGBs can solve food crises if appropriately implemented with funding for improved seeds. However, authorities warned about its challenges, from politics to majorities.
Atabong (2017)	Can community grain banks help Cameroon tackle its chronic food insecurity?	Cameroon	In northern Cameroon, CGBs combat food insecurity caused by various factors, including the BOKO Haram insurgency and climate-induced mistake grain ruptions. Instead of selling their crops immediately after harvest, farmers save their crops like maize, sorghum, and wheat in village granaries. When households run out of their reserves, they take grains in the form of loans in the lean season. This not only stabilizes the prices but also ensures food accessibility.
Aylward (2013)	Cereal banks empower women and fight famine in Africa's Sahel Region	Sahel Region of Africa	In 2012, the Sahel region of Africa faced drought and high food prices, threatening food security for over 18 million people. Organizations like the World Food Program (WFP) AND Care created women-managed cereal banks in Sahel Villages. These banks provided food security shields and empowered women as they were taught essential skills like bookkeeping and stock monitoring.
Commandeur, Ekpe, & Abu (2016)	Grain banks in Ghana: Credit for caterers brings farmers into the market	Ghana	Initially aimed at ensuring food security, the grain bank program now connects smallholder farmers to the school feeding market, benefiting farmers and caterers. Successful in a pilot project with positive outcomes, the program had led to increased farmers' income and improved access to quality grains. The model can be scaled for five banks in Ghana to engage more farmers nationwide. However, some banks need to expand to meet year-round demand. The project received essential funding from the PG-HGSF initiative.
Eibisch (2015)	Cereal banks in The Gambia—A case study	Gambia	The case study identifies that cereal banks have been successful in Gambia because of four critical factors that influence their success and failure: leadership, collateral security, peer pressure to repay grain loans, and strict adherence to rules for all. They play a crucial role in enhancing the food security challenges in the region.
IRIN News (2008)	Are cereal banks the best option to fight hunger?	Niger	Historically, cereal banks in the Sahel region, including Niger, have struggled to sustain due to issues of mismanagement, corruption, and external interference. However, women's new setting of cereal banks aims to avoid outside support and promote community ownership.
Khan (2017)	In a Bihar District, an Anaj Bank has freed Dalit women from hunger and exploitation.	India	Anaj (Grain) Bank has come to rescue women in marginalized Maha Dalit communities in Bihar, and it was established with the organization's help. The Anaj Banks provide rice on credit, enabling women to feed their families during times of scarcity. This has brought hope, confidence, and self-reliance to these women, allowing them to escape hunger and bonded labour.
Krishna (2021)	Great gains from small grain banks	India	In the rural village of Bijapur, Uttar Pradesh, India, a community grain bank established by Shramik Bharti empowers local farmers. Each member contributes rice to join the bank, and the bank provides food security, particularly during times of crop failure and economic hardship. The bank has been a lifeline for its members during the COVID-19 pandemic, ensuring they have access to food. These community grain banks offer a grassroots solution to address hunger and food insecurity, especially among marginal farmers and labourers in rural India.

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Lahangir (2012)	The gains from grain banks	India	The high level of indebtedness among farmers and agricultural labourers has led to the creation of grain banks. Self-help groups manage these grain banks and charge minimal interest rates. Excess stock is sold in the market, and the proceeds are reinvested to earn interest. These positively impact food security and have reduced farmers' dependence on moneylenders who charge exorbitant interest rates. This has also brought significant autonomy to tribal communities in the region.
Mane (2019)	Cereal banks improving food security and incomes in Guinea-Bissau	Guinea-Bissau	In Guinea-Bissau, reliance on cashew monoculture and declining cereal yields led to severe food insecurity. With the help ofthe cereal banking system, varieties of local cereal were promoted. This ensured a steady supply of grains during food scarcity and helped local communities avoid hunger. The initiative empowered local communities by including farmers/producers in seed selection and cereal bank management as they gain control over their food resources, become more self-reliant and take ownership of their food security.
Misra (2014)	Saving for rainy days	India	In the Sunder Ban region of West Bengal, a community grain bank has been established by a women's self-help group with the help of a local organization. These banks ensure food security, particularly for landless agricultural labourers during the lean season. The grain banks are managed collectively by their members, and grains are provided with a modest interest rate. This initiative has reduced poverty overall and the need for loans from local moneylenders.
Ng (2014)	Women-run food banks provide cereal grains to poor farmers	Niger	In Niger, cereal banks/food banks supported by International Fund for Agricultural Development (IFAD) are operated exclusively by women to help local farmers during food shortages. These banks were initiated as a response to the 2005 food crises caused by droughts. Since then, the initiative expanded, benefiting thousands of people. It empowers women and facilitates community development activities.
Njagi (2018)	Rain or shine, grain banks help Kenyan farmers beat trade cartels.	Kenya	In Kenya, CGBs are helping farmers manage surplus crops and food security. It eliminates dealing with mediators, and farmers can sell their harvest to Grain Banks at appropriate prices. The initiative helps impoverished families become more resilient to the effects of natural calamities on their income and food needs.
Pandey, K. (2015)	Stock option	Bangladesh	Paddy banks in Bangladesh, initiated by Rangpur Dinajpur Rural Service, are innovative solutions to combat seasonal food insecurity among impoverished communities. The system reduces the reliance on moneylenders and offers a safety net to vulnerable households' creating a sustainable food reserve.
Saikai (2023)	She sowed seeds of grain bank to feed people experiencing poverty	India	The article highlights the story of a woman – Uemilaben, from a village in Gujarat, who started a grain bank to address malnutrition and food scarcity. With support from an organization, a self-help group was created to manage the grain bank. A barter system was included, where families exchanged commonly consumed pulses and grains for more nutritious options of equal weight to encourage a healthier diet.
Singh, N. (2021)	Rural women's 'grain banks' in Uttar Pradesh support small farmers aid food security amidst COVID-19	India	The Grain Bank initiative in Uttar Pradesh, initiated by Shramik Bharti in 2016, is a testament to women's solidarity and empowerment in rural communities. The initiative has been crucial in addressing food security challenges, especially during COVID-19. It has proven to be a lifeline for small landholders and landless farmers, ensuring their household survival and grain needs.
Waldron (2019)	Community grain banks create a pathway out of poverty	Malawi	A Malawian farmer, Grace Levison, overcame food shortages through a community grain bank collaboration with United Purpose. With better inputs and a smart storage system, they increased crop yields, food security, and economic wellbeing, showcasing the power of local initiatives in tackling agricultural issues.
World Bank (2019)	Community grain bank staves off hunger in food insecure households	Kabul Province, Afghanistan	The Guldara District of Kabul Province community grain banks support vulnerable households, including landless farmers and agricultural labourers. They are helpful in natural disasters and economic stress. The programme, supported by the Citizen's Charter Afghanistan Project, aims to combat seasonal hunger by distributing food and necessities.