



Concept, status and impact of foodgrain banking in Indian villages: A review

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ABSTRACT

Utilization and distribution of foodgrain always remain as an un-ending riddle to the policy makers and administrators despite surplus in foodgrain production in an agriculture dominated economy. At one hand, glut in market leads to distress sale by the debt-ridden farmers and consequent disinterest in farming among village youth in long run; on the other hand rural societies in difficult terrain faces regular cycle of seasonal hunger due to climate, crop and infrastructure related reasons. The time has come to think beyond the overburdened public distribution system to channelize the surplus produce properly since more than 20 million tonnes of grains produced are destroyed annually due to improper transport, inadequate storage facilities both in institutionalized sector as well as farmers' home. Grain banking is a remedy to the food loss and food insecurity, is mostly applied for tribal areas and difficult terrain with high seasonality of agriculture and harsh climate. It has been successfully applied in Odisha, Jharkhand and Uttarakhand, where community managed grain banks with set rules and norms provide the needy with grain, who in turn returns it through cash or kind. Clusters all over the country could be conceptualized with grain banks in glut region and the nearest starved region exchanging food and that may be hoped to reduce distress sale, wastage and hunger. Present paper is an attempt to review the grain bank concept implemented in India, its pros and cons along with the strategies for scaling up.

Key words: Distress sale, Grain bank, Procurement, Strategies

The agricultural sector in India accounts for 16% of GDP and 10% of exports earnings. India is with arable land area of 159.7 million ha (394.6 million acres) and the second largest in the world, after USA (Awate and Ligade 2016). The country ranks among the top three global producers of many crops, i.e. wheat, rice, pulses, cotton, peanut, fruits and vegetables. In spite of these achievements, the crop yields in India are still around just 30 to 60 per cent of the best sustainable yield achievable in the farms of developed countries (FAO 2015). These are likely to be negated in the coming decades due to scientifically and technologically improved crop production measures. But at the same time post harvest losses in India is also in an escalating rate. A grain saved is a grain produced. These golden words do not remain as mere proverb when one thinks ruefully about the quantum of post-harvest losses of agricultural produce due to inefficient supply chain management (Bhartendu and Anil 2015, Anonymous 2014). Though the loss of dry grain is lower compared to raw roots, fruits and veges in developing countries like India, according to a study conducted in 2003, total post harvest loss of rice and wheat in India was 5.19

kg/q and 4.32 kg/q respectively in the state of Karnataka alone (Basavaraja *et al.* 2007). The reason for such huge post-harvest losses mainly attributes to lack of scientific storage facilities, improper transportation, poor front end infrastructure, obsolete food processing technology and farmers' inaccessibility to value-added services. World Bank (1999) study showed that the post harvest losses of foodgrains in India are 7-10 per cent of the total production from farm to market level and 4-5 per cent at market and distribution level. Its percentage is changing in an escalating scale as a study by Gills *et al.* (2015) indicated that it's nearly reaches to 35-40 per cent. With the given per capita cereal consumption requirement in India, the grains lost would be sufficient to feed more than 10 crore people (Prasanna and Harish 2013, Elumalai 2014). The situation becomes grimmer, where the grain produced is not consumed locally as it is not incorporated in the local culture (Rajeswari *et al.* 2004, Muralidharan and Pasalu 2006, Rajeswari and Muralidharan 2006).

Production and procurement of cereals

India is one among the country, with world's largest established public procurement system for collection and distribution of grains from the source to sink. The marked surplus is supplied to the central pool and delivered at the nominated warehouse or at the local *mandi* marked for procurement or delivery. The procurement agency collects

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the quantity deposited to the central pool by the farmer and transports the same to the Food Corporation of India (FCI) or nominated warehouse, and ultimately distributed to people. In order to facilitate procurement of foodgrains, FCI and various State Agencies in consultation with the State Government establish a large number of purchase centres at various mandis and key points. The number of centres and their locations are decided by the State Governments, based on various parameters, so as to maximize the Minimum Support Price (MSP) operations. For instance, for wheat procurement more than 20000 procurement centers were operated during Rabi Marketing Season (RMS) 2015-16 and for Rice procurement more than 44000 procurement centres were operated (FCI 2016). About 72 to 75 per cent of organized warehousing sector in India is being controlled by Government and Public Sector Undertakings (PSUs) such as the Food Corporation of India (FCI), Central Warehousing Corporation (CWC) and State Warehousing Corporations (SWCs). The current capacity of the organized warehouses, controlled by PSUs, cooperatives and private sector, is 117.52 million tonnes, of which the private sector has only 18.97 million tonnes (WDRA 2015,), the details are as follows:

Name of the organization/Sector	Storage capacity in million tonnes
Food Corporation of India (FCI)	38.34
Central Warehousing Corporation (CWC)	10.30
State Warehousing Corporations (SWCs) and state agencies	34.84
Cooperative Sector	15.07
Private Sector	18.97
Total	117.52

Source: WDRA 2015

It has been estimated that about 65% of the total produce are held by the farmers for their consumption and future use which is stored in a crude and unscientific method (Vikas *et al.* 2015, Singh 2010, Ramesh 1999). These non scientific methods of storage are the most severe reason for the foodgrain damage after the harvest. Nearly 7 to 14% of the total foodgrain stored is wasted (Richa 2014). While the storage by farmers suffers wastage of 6 per cent due to rodents, insects and fungi, surprisingly the wastage is about 30 per cent when the foodgrain is stored by FCI and state warehouses. It is still more intense that the highest wastage occurs in the so-called developed states of Gujarat, West Bengal, Punjab, Maharashtra and Uttarakhand (Mukesh Chawla 2016). Unlike traditional rice producing and consuming areas of east and south India, north India produces rice, mainly the scented rice varieties for earning additional money. With the spread of irrigation network, problem of wild animals for pulse crops and release of better rice varieties, large swathe of arable lands, where traditionally rice is not consumed at home, are now under rice cultivation, especially the fine grain scented varieties (Molly 2014). At the harvesting phase markets faces glut

situation for clearing of stock. Lack of a proper marketing channel forces the farmers to distress sale (Anonymous 2012, Anonymous 2015, Gills *et al.* 2015) makes them victims in the hands of greedy middlemen and ultimately restricts their income. Situation like these compounded by non-availability of space in government storage facilities and thereby non-procurement of grain gives rise to one type of distress sale, as farmers need quick payment to repay the loans etc. for the past and coming season.

FCI and State Warehousing Corporations together hold a storage capacity of nearly 70 million tonnes, whereas foodgrains procured every year exceed 80 million tonnes, creating a shortfall of about 10 million tonnes. An addition of emergency stock requirement of 10% widens this gap to 20 million tonnes. While the average capacity of a facility is 20000 tonnes, many of the FCI storage facilities are set up in open sky, making it easy for the grain to rot (Mukesh Chawla 2016). On other hand, often the stock stored in the warehouses remain in storage for more than its shelf life due to want of off take of stock by allottee like Targeted Public Distribution System (TPDS) and flour mill owners. Such long storage, if not taken proper care of, causes damage to the stock. Since the stock stored in the warehouse is not lifted, the storage space cannot be utilized for fresh arrivals of the ensuing season. Supply channel bottlenecks and lack of a proper marketing channel are serious problems for a farmer who is already burdened with a host of troubles. Therefore, availability and augmentation of storage capacity

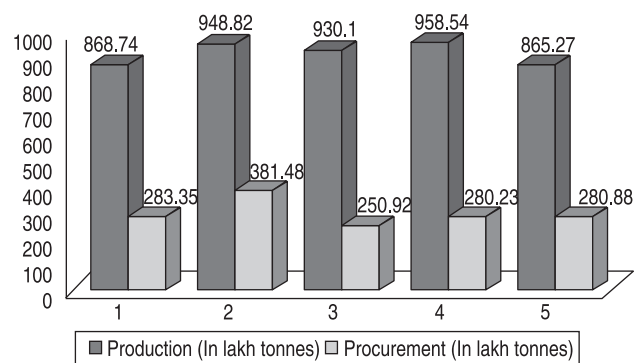


Fig 1 Production and procurement of wheat (Source: Department of Food and Public Distribution, MoCA 2016)

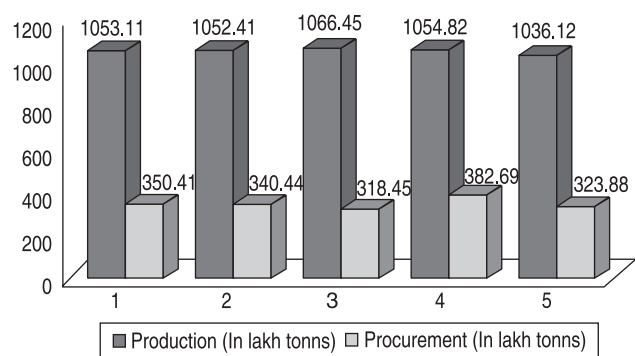


Fig 2 Production and procurement of rice (Source: Department of Food and Public Distribution, MoCA 2016)

is one of the main priorities of the Government of India. These are issues which need to be tackled at the regional, state and national levels. There is a need that sufficient modern warehousing capacity should be created in the country to store and preserve the foodgrains procured for Central Pool. As a result, a substantial quantity of foodgrains can be stored in storages.

Remedial measures to reduce distress sale and grain loss: conceptualization of grain bank

The alternative measures for reducing distress sale are grain bank, revamping of Public Distribution System (PDS), infrastructural support etc. Reducing distress sale through grain banking is an effective and efficient alternative method as it rooted deep into our history and culture can have far reaching benefit, for farmers, village society and economy together (Bhattamisha and Barrett 2010). The concept of grain banking in India is as old as ancient history of civilized India. The mention of community banking of grain to save famine-struck Shravasthi was mentioned in our historical stories (Ajay 2015). In modern time the concept of grain banking has been revitalized in institutionalized format with a goal to reduce wastage and create a buffer stock of grain toward scarcity of food and to sustain nutritional security (FAO 2014) in areas with regular appearance of hunger and food shortage. Any untoward situation resulting from crop failure or other natural calamities or even domestic events like illness, death, marriage in the family etc. generally adversely affect upon this precarious economic position of the farming community, since they seldom have any surpluses to meet any unexpected eventuality.

Developing India has started a separate scheme on village grain bank considering its importance. Village Grain Bank Scheme was earlier implemented by the Ministry of Tribal Affairs. However, since 2004, the scheme was being implemented by the Department Food and Public Distribution (DFPD 2004). Grain banks have been established in different parts of the country, mostly in tribal population dominated areas like Odisha (Thimma 2002). The State cooperation department intended to replicate the grain bank scheme to different parts of the state, after being enthused by the grain bank experiment at Baragarh. In the process, agencies like food supplies and consumer welfare department and FCI were also to be involved (Planning Commission 2013). Ideally a grain bank can be established in any village where surplus grain production is there. Twelve states were identified by the Central Planning Committee to develop the grain bank and the states are Andhra Pradesh, Bihar, Gujarat, Kerala, Madhya Pradesh, Manipur, Odisha, Rajasthan, Tamil Nadu, Uttar Pradesh, West Bengal, Tripura and Maharashtra (Dnyandev 2013). Even though the concept of grain bank has been primarily developed to reduce transient hunger and demographic instability of tribal societies, it can be extended to the parts of the country where surplus grain and the grain bulk susceptible to under pricing at institutional procurement systems, can be retained in a community managed system.

The grain banks are generally managed by a committee drawn from the community, ideally with 50% representation from women. The members of the foodgrain bank are entitled to avail loans in the time of need, rules of which applies equally to all members. The members decide on terms of lending and modes of repayment. The rules are indicated at the time of lending and it is repaid in kind in the same foodgrain. In exceptional cases, the loan may also be repaid in cash or by other commodities, agreed upon by the management committee. Regions facing transient hunger and with intensive agriculture can establish grain bank purely for commercial purpose. Either they could stock the grain like potato in cold storage for better marketing time, or the committee will trade the grain to lean region banks through an inter-state grid of grain bank transport channel or by roping in post office services for this purpose for faster delivery of grain. Village level communities can take initiatives to manage grain banks for modalities of pricing, delivery, procurement in credit, payment method, i.e. cash and kind, bartering local produce in lieu of life saving grain etc. This new concept can be adopted for institutionalized retention of foodgrain for future business (Olivier and Gaetan 2011), better bargain and safeguarding farmers from the game plans of the hoarders and traders, which has been pointed out to be the reason behind low remuneration to farmer, time and again. As there is no apparent nutritional insecurity in affluent farming regions like north-western states, the grain banks can modify their operation focusing on retention of grain for better price. The government has sanctioned more than 22000 village grain banks in 20 states so far to provide safeguard against starvation during the period of lean season or natural calamities (Anonymous 2015).

Over view of impact of grain banks in different farming conditions

Grain banking conceptualization in reality has many important impacts on farming community. A study (Menon 2013) showed that grain banking helped farmers in reduction in indebtedness to moneylenders, creation of new self-employment opportunities, and acceptability of these as effective disaster mitigation strategies as well as improvement of the status of women within the family. Other than this, the grain banking concepts are not fully occupied to support the nutritional and food security of the village farmer, since major concept under this is to store only grains not others. Hence, changes in grain banks by introducing distribution and storage of other foods such as pulses, tubers, and millets is needed for its effective functioning. This may contribute to the revival of millet-based mixed cropping systems among small and marginal farming families (Khedkar 2008).

The grain banks have helped villagers a lot even if they are not beneficiary member by providing the opportunity to consider it as a food source in the lean season. Grain banks have the impact not only in their villages but to the nearby villagers where grain banks are not present. In many

villages where the grain banks were implemented, it has reduced the local migration rate, i.e. make villagers not to move from the village for getting grains from outside but the outsiders need to move to villages to get the grain from grain banks (GVK 2011). Other general positive impacts of grain banks among the community people are, grain transportation, storage space in villages and food security in the village, self sufficiency among the villagers etc. (GVK 2011).

In villages where the Community Grain Banks (CGBs) are functioning well, the incidence of starvation is less. Further, with transient hunger addressed, the villages can focus on nutrition security, environment, hygiene and overall development, leading to overall improvement in quality of life (MSSRF 2006, Awate *et al.* 2016). Besides addressing the issue of food security, it has the capacity to bring people together for collective action. Community led grain banks have the potential to become the focal point for collective development activities in a village (MSSRF 2006). A study by Roche *et al.* (2015) showed that high acceptability and pride were associated with the grain banks. The subsidized barter system was considered both a major motivator for rural women to participate in the grain bank project but also one of the greatest risks to sustainability of the grain bank model. Another risk factor associated with this concept is the management. Many times the issues related to the improper management to recover the grain supplied on demand bases may emerge. A management committee with the proper representation from all sections of the community is needed for the sustainable growth and establishment of the grain banks.

Grain Bank in Uttarakhand : A success story

The grain bank scheme was launched in Garhwal region of Uttarakhand, in the year 2011-12. A total 55 Grain Bank have been set up in food-insecure villages of the region. These were set up with World Food Programme and GOI support, to ensure at least two meals a day. It has the uniqueness in a sense that it was fully managed by a self-help group comprising 24 women from the village. The aim of grain bank at Uttarakhand state was to provide safeguard against starvation during the period of natural calamity or during lean season when the marginalized food insecure households do not have sufficient resources to purchase rations. The banks have been built to store food at the village level and are managed by trained women from the community. Households in need can borrow from the banks during the lean season and return the loaned amount after the harvest. The women managers decide themselves on an interest rate for the food loan so that the banks can grow with time. The programme also aimed to address seasonal food insecurity and also works to empower local women (Radhika 2011). The village grain bank scheme of Government of India (GoI) has generated a hope for the chronically food scare areas to ensure food and nutritional security of the vulnerable section of the community.

It impacted in many ways to the life of village

community. In this grain bank project, even if food is short, the members of grain bank can still feed their families through borrowing grain from the bank. Evaluation studies found that most members of village grain banks have sought and obtained food loans varying from 40 kg to one quintal from the banks. Most of the loans have been paid back, at least partially, with a small interest component. The banks are also accepting other grains in lieu of the borrowed grains, using an accepted conversion formula. The Government plans to replicate the programme in all the proposed 670 Atal Model Villages.

Suggestions and conclusion

Agriculture in hinterlands, hilly terrains and tribal areas produce many crops which are indigenous in nature, hardly available in agriculturally rich areas. Due to less penetration of high-yielding varieties due to various reasons, farmers cultivate varieties of crops long forgotten in many parts of country. Durum wheat, many indigenous rice varieties, coarse cereals of different kind, *ragi*, *sawan*, kodo millet, different pulses with medicinal values, wide range of vegetables and herbs growing as weed and wild vegetables are hallmarks of hinterland agriculture even today. The indigenous communities prepare many value added products from them, which are either not available in richer parts like Delhi and National Capital Region (NCR) or have strong emotional value for migrated communities and people are ready to pay premium price for them. The utilization of mahabringaraj, tulsii, chickpea as leafy vegetables, tree gum, home-made food from coarse millets, linseed and many such other commodities along with many dryland farm produces could be procured and skillfully marketed in cities through grain bank authorities of grain rich regions. The value of such rare produces may balance the bulk of rice and wheat, otherwise sold at cheaper rates in conventional mandi system. The initiative of grain bank could be institutionalized only after few such channels open as pilot project and remain active for some years for ironing out hurdles. For example, the hilly region grain banks of Uttarakhand could procure rice and wheat from such banks opened in the plains of Punjab, western Uttar Pradesh and other intensively cropped region. Similarly grain banks of Bihar or alluvial plains of West Bengal could supply to tribal belts of Chhotanagpur region or traditionally starved regions of Odisha or western West Bengal (Planning Commission 2001). In another approach, intra or inter-state clusters can be created to establish linkage between grain banks established.

The community level banks can very well work as decentralized, community-managed food banks, which can cater the need of food shortage, seed shortage and also, as said before a temporary halt for better price regime. The government should take initiative to start in every community where surplus is available. The decentralized system as Panchayat should regularize the mode of operation of community grain bank. Institutions devoted for rural upliftment and finance, like National Bank for Agriculture

and Rural Development (NABARD), line departments can train the villagers regarding the methods of running grain bank professionally, e.g. record keeping, maintenance of accounts and rural youth can take it up as a business. Decentralized small scale trade of surplus grain by the grain bank managers could spread a network of business without much interference from the Government. Ultimately, it can be assumed that, expansion of such network will create a strong “food security net” which will reduce the frustration of farmers over non-remunerative outcome of farming. Man power engaged in national programmes need to be trained to motivate the villages and provide sufficient and adequate information to them for establishment of community led grain banks. Grain bank concept started with the aim of providing food to the poor people in lean season but it is the time to think about the nutritional security. Through this grain bank, community can store and distribute pulses and other oil seeds to give nutritional security to the village community on the base of prescribed norms. Monitoring and up scaling of the working grain banks to nutritional bank can be possible through this intervention.

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