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A study on the efficacy of the Public Distribution System in India with special emphasis to the functioning of agricultural warehousing agencies

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Abstract: *The study analyses the effectiveness of the public distribution system in India with special emphasis to the functioning of public sector agricultural warehousing agencies such as Food Corporation of India (FCI) and Central Warehousing Corporation (CWC), engaged in the procurement, transportation, storage and distribution of food grains. The data for the period of 2007-08 to 2011-12 has been collected from secondary sources and has been interpreted. The study shows that the current procurement trends of food grains would not sufficient to meet the allocation and the future requirements in the twelfth plan period. The per capita net availability of rice and wheat declined marginally, while the total availability of cereals and other pulses increased significantly. The total cost of food subsidies contributed about 5 % of agricultural GDP during the last 5 years. The main reason for increase in economic cost of food grains is the higher procurement prices which also lead to rising food subsidies. Instead of open-ended procurement policy in India, a need-based procurement system has to be implemented.*

I. Introduction:

India has seen tremendous progress in agricultural produce as it has quadrupled its food grain production since independence. India's food grain production has mounted over 250 million tons in 2011-2012 from a mere 120 million tons in 1980. Rice and wheat accounts for over 75% of all food grain output. These staples are vital for household food security and constitute a major source of calories especially for over 300 million deprived populations in the country. (Rehman et al., 2012). Given that about two-third of Indian population make their income from agriculture and an average Indian household spends about 30% of its budget for food grains, the structure and efficiency of Indian food grain marketing is not negligible in Indian economy. Food grain marketing consists of all the activities involved in the movement of food grains from producers to consumers. In order to ensure food security in the nation, Government of India formulated a food grain management strategy focused on procurement of food grains at remunerative prices from the growers; its storage and movement; maintenance of buffer stocks and ensuring availability of food grains to the public at reasonable prices. The overall responsibility for management of food grains given to the Ministry of Consumer Affairs and Ministry of Food and Public Distribution, Govt. of India. The procurement of food grains by Government is primarily intended to provide remunerative prices to farmers, thereby avoiding distress sale of food grains; and to build up a stocks to ensure the supply of subsidized food grains to the needy and poor. The responsibility for distribution of food grains to the beneficiaries vests with the respective State Governments.

The Public Distribution System (PDS) is the most important channel through which the Government ensures food security at the micro level. India has a large programme of public distribution, mainly food grains, through a network of Fair Price Shop (FPS), both in rural and urban areas. With more than 460 thousand FPS, its reach in rural areas is sometimes better than the open market. The PDS is the largest food subsidy programme in India, and perhaps in the world. It reaches out to nearly 10.5 crores households in the country and provides food grains at subsidized rates. Despite this, India continues to have one of the worst track records globally, as far as the commitment to tackle hunger and malnutrition is concerned. (Bhat and Hussain; 2012). However, PDS in India was widely criticized for its failure to serve the population below the poverty line, its urban bias, negligible coverage in the states with highest concentration of rural poor and lack of transport and accountability (Sawant and Jadhav, 2013). In 1997, the Govt. of India launched a revised scheme of distribution known as the Targeted Public Distribution System (TPDS) to benefit the poor and to keep the budgetary food subsidies under control to the desired extent One of the foremost objectives of the TDPS is to insulate the poor form rising market prices for food grains Under TPDS, food grains were distributed as a two-tier delivery system to households below poverty line (BPL) and above poverty line (APL), with each BPL family receiving a set quota of food grains per month at heavily subsidized prices. The TPDS is an important instrument of policy aimed at reducing poverty through the mechanism of delivering desired requirements of food grains at highly subsidized prices to the population below the poverty line. In addition to TPDS, Govt. of India initiated a number of schemes to further support the deprived such as Antyodaya Anna Yojana, Annapurna scheme,

Sampoorna Gramin Rozgar Yojana, midday meal scheme, wheat based nutrition programme etc. All these schemes are used primarily to make the TPDS more focused and targeted towards the poor, to increase their employment opportunities, and to help to reduce the overstock of food grains in the central reserves.

The agricultural warehousing scheme in India is an integrated scheme of scientific storage, rural credit and price stabilization and also intended to supplement the efforts of state co-operative institutions. In India, warehousing industry is mostly dominated by public sector undertakings viz., Food Corporation of India (FCI), Central Warehousing Corporation (CWC), State Warehousing Corporations (SWC) etc. The procurement of food grains is done centrally through the FCI and decentralised procurement (DCP) has been permitted in the case of eleven States/ Union Territories. The activities of the corporation include the purchase, storage, transportation, distribution and processing of food grains. FCI procures wheat and rice at Minimum Support Price (MSP) that is homogeneous throughout the country and resorts to open market by sale of buffer stocks at below market prices as and when the need emerges. This will serve to diminish the sudden price rise, and assure fair price to farmers. Additionally, CWC operates 469 warehouses across the country to facilitate warehousing services for a wide range of products ranging from agricultural produce to sophisticated industrial products. Apart from storage and handling, CWC also offers services in the area of clearing and forwarding, handling and transportations, procurement and distribution, disinfestations services and other ancillary activities. The Central Warehousing Corporations has 17 associates in State Warehousing Corporations having capacity of 209.26 lakh metric tons (LMT) at 1595 locations (Rehman et al., 2012). Today the stock of food grains available in central pool is well above the buffer stock norms. Thus, the problem today on the food front is not because of scarcity but that of managing the surplus rationally. In this perspective, the structure and efficiency of agricultural warehousing in India necessitates a detailed analysis.

Literature Review:

Previous studies on different public distribution systems yielded mixed conclusions. The benefits of PDS were well recognized by emerging economies. Public distribution schemes in Bangladesh, Cambodia and Pakistan have helped to get more girls into education (Ahmed et al., 2007).The PDS in India has been operational for more than five decades. Growth of the PDS, its functioning, coverage and its efficiency on providing food security was discussed by (Bapana, 1990). Several developing countries including India achieved food self-sufficiency because of well organized PDSs for agricultural produce. The PDS makes food accessible and transfers income in the form of subsidy. As per Jha (1992), about 40-50 % of the population buys subsidized rice and wheat and about half of them are non-poor. It means that a substantial part of PDS benefits accumulates to the non-poor. It was previously reported about the PDS, that the access to resources and utilization of commodities has been low and it has hardly impacted the nutritional status of the targeted populations. (Khera, 2011; Radhakrishna et al., 1997). Arora (2013) examined food subsidy in India and investigated the reasons behind the failure of PDS in many parts of the country. The study reports the system failed to reach the poor in most of the states other than the southern states like Andhra Pradesh, Tamil Nadu and Kerala, where it has been partially successful. Rashpaljeet and Kaur (2014) studied the organization and working of PDS in Punjab and reported the major leaks and weaknesses in the functioning of the scheme in the state. The study found that in Punjab, nearly 76% of the food grains were diverted to the open market and another 13% was diverted APL households. A mere 10% of the grains reach the BPL beneficiaries. It has been argued that 'common issue price" could be a possible way to reduce leakages and misappropriation of commodities. However, considering the enormity of food insecurity and hunger in India the provision of food subsidy and rationalizing the distribution of grains is not adequate for the population (Jha et al., 2010) In another comparative study on PDS conducted by the same authors (Jha et al., 2013) based on the factors like food subsidy, income transfer and the involvement of the poor, revealed that the program is not well targeted and the poor as well as the non-poor receive subsidy benefits. The inefficiency of state institutions in controlling food prices and managing PDS with implications on quality of the products was previously reported by Ramaswamy and Balakrishnan (2002). The study shows that demand switches will not occur as long as the market price of food grains remains higher than the subsidized grains. However, the quality of the product becomes the determining factor when the price of the open market is similar to that of the subsidized commodities.

Many among scientists, policy reformers and other stake holders argued that the PDS need to be reformed so as to target specifically the poor and needy (Jha 1992; Ahluwalia 1993; Pal et al., 1993). Consequently, the Government relaunched PDS as Targeted Public Distribution System (TPDS) which aims to reach a provide 60 million families below poverty line with 20 kg grains each month. According to the study conducted by Sivakkolundu and Loganathan (2013), about six crores families the nation is benefited by the TPDS. The functioning of organizations like Food Corporation of India and Central Warehousing Corporation in ensuring procurement, transportation, storage and distribution of commodities provided by the public distribution system was critically analyzed by Pal (2011). The study reveals that that the current system is extremely corrupt and fails to address issues related to stoke shortage, fake supply entries in ration cards,

diversion of commodities for sale to open market, , irregularity and poor quality of food grains etc. The situation calls for urgent technical upgradations and policy reforms to ensure transparency, and improve performance to solve the above mentioned problems.

Hypothesis:

Several debates on the functioning of PDS in India have been centered about its role in ensuring food security or providing adequate food safety especially to vulnerable sections of the population. Nevertheless, the system formulates the most important channel through which the Government ensures food security at micro level. The present study is exploratory in nature, which analyses the adequacy and efficacy of the PDS in India with special emphasis to the functioning of agricultural warehousing agencies like FCI and CWC engaged in the procurements, transportation, storage and distribution of food grains.

II. Methodology:

The data for a period 5 years from 2007-08 to 2011-12 has been collected from secondary sources such as annual reports of Food Corporation of India, Central Warehousing Corporation, Warehousing Development and Regulatory Authority (WDRA), CAG report on storage management and movement food grains in FCI, Planning Commission report on warehousing development and regulation for the twelfth plan period (2012-17) and Agricultural Statistics -2013, Directorate of Economics and Statistics. The data has been analyzed to find the capacity, stock position and percentage of utilization of warehouses during the last 5 years. Furthermore, the aggregate food grain procurement, per-capita availability of food grains, consumer subsidy on food grains etc. was also evaluated.

III. Results and Discussion

The total operating capacity and percentage of capacity utilization of CWC and FCI warehouses during the 2007-08 to 2011-12 is given in fig 1. The overall percentage of utilization of CWC warehouses increased from 73.61% in 200-08 to 91% in 2011-12. However, a marginal 3% increase was recorded in the capacity utilization of FCI warehouses during the period of study. Fig 2 represents the average operating capacity and the utilization of storage capacity per warehouse. The average utilization of storage capacity per warehouse has been calculated by dividing total utilization of storage capacity during the period of study by the number of warehouses. The CWC warehouses have 0.215 lakh metric tons (LMT) average operating capacity in 2012 of which 0.194 LMT is utilized whereas, FCI warehouses has 0.089 LMT in average storage capacity. The average storage utilization recorded in 2012 was 0.074 LMT. The results indicate that the average utilization per warehouse was less than the average storage capacity per warehouse in all the 5 years because the average storage capacity of the warehouses was not fully utilized by the depositors over the study period. On the other hand, owing to the provision of higher minimum support prices (MSP) for food grains, an elevated level of procurement of was recorded during the last five years, This in turn, not only ensured remunerative prices to farmers but also caused strain on available storage capacities with the State agencies involved in procurement. States have been facing severe deficits for covered storage capacity.

The financial highlights of CWC and FCI during the study period is given in table 1. FCI recorded an annual turnover of Rs. 97719.59 crores in 2011-12. The capital employed turnover ratio reduced to 16.10 from 5.35 in 2007-08. The net worth reduced from Rs. 2433.66 to 2155.04 crores. The annual turnover of CWC was Rs. 1218.65 crores with a capital employed turnover ratio of 0.99. The net worth increased substantially from 1080.24 crores in 2007-08 to 1304.08 crores in 2011-12. The capital employed turnover ratio shows how efficiently capital employed in the corporation has been utilized in generating revenue and establishes the relationship between the amount of sales and capital employed. The reduction in capital employed turn over ration of FCI in on account of the subsequent growth in working capital as compared to slight growth in overall sales. A consistent increase in net worth indicates good financial health of CWC; conversely, the net worth of FCI may be depleted by annual operating losses such as transient and storage losses of commodities or other depreciations etc.

The Aggregate food grain procurement by FCI during the period of study is given in fig.3. The procurement volume of rice steadily increased from 287.36 LMT during 2007-08 to 344.64 LMT in 2011-12. Wheat procurement during the period also observed similar trend i.e 111.28 LMT during 2007-08 to 283.35 LMT in 2011-12. However, as per the recent CAG report on storage management and movement of food grains in FCI, The average food grains procurement of 514 LMT during the period was lower than the average allocation of 593 LMT made by the Government of India to states for distribution under Targeted Public Distribution System (TPDS) and other welfare schemes (CAG Report 2013). With the objective of reducing the overdependence of the State Governments on the FCI for TPDS and reducing transportation costs by ensuring availability of locally produced food grains, the Government introduced the scheme of Decentralised Procurement (DCP) of food grains. Under this scheme, which is being implemented in eleven States and Union

Territories can retain the quantity required for TPDS and surrender the rest to FCI for the Central Pool. Fig 4 represents stock position of wheat and rice in central pool by FCI and state agencies in India at the beginning of each year against the minimum buffer norms during the study period. The actual wheat stocks at the beginning of 2012 was 256.76 LMT against the minimum buffer stock of 122 LMT as stipulated by the government. The rice stocks recorded a total volume of 297.18 LMT against the minimum buffer stock of 138 LMT. Buffer stocks are maintained by FCI in order to stabilize the availability and prices of food grains, and, thereby, to achieve national food security. Maintenance of low buffer stocks adversely affects the national food security, whereas carrying too high stocks is costly and inflationary (Gulati et al., 1996).

A comparative account purchase and sales of food grains during the period of study is given in fig 5. The annual wheat purchase volume steadily progressed from 114.1 LMT in 2007-08 to 226.8 LMT in 2011-12 whereas rice purchase increased from 197.1 LMT to 226.8 LMT during the period. Consequently the sale volume also recorded higher progressions. The total food grain sales increased 311.2 LMT in 2007-08 to 468.8 LMT in 2011-12. A minimum support price (MSP) for the producers is fixed by the Government of India and procurement is done at this rates. There are various programs under the TPDS and other welfare schemes in which a Central Issue Price (CIP) of food grains are fixed and specific quantities are allocated to each state. The difference between the economic cost (MSP plus the post procurement and distribution cost) and the CIP is the operational loss of the corporation which is reimbursed by the Government of India as food subsidy. Besides this, Government of India also reimburses the cost of carrying of buffer stock of food grains maintained by FCI as a part of subsidy (FCI annual report 2011-12). The percentage of share of consumer and buffer subsidy in total FCI subsidy is given in fig 6. The Antyodaya Anna Yojana (AAY) scheme was launched in December 2000 in which ten million poorest households among the 65 million below poverty line (BPL) families were identified and provided them with 25 kg of food grains per family per month at a low price of Rs 2/kg for wheat and Rs 3/kg for rice. As a result, the average consumer subsidy on wheat has increased from Rs. 1148.70 per quintal in 2007-08 to Rs. 1451.90 in 2011-12, whereas subsidy on rice increased from Rs. 1271.40 to Rs. 1880.20 per quintal. In the case for BPL households the subsidy on wheat was raised from Rs.738.70 per quintal to Rs.1041.90 per quintal and for rice the subsidy was increased from Rs. 741.40 to Rs.1354.20 per quintal during the corresponding period. The consumer percentage share in total FCI subsidy was ranged between 87 to 90.3% during the study period whilst, the share of buffer stock subsidy was reduced from 13.9 % to 9.7%. According to the economic survey (2011-12), the main reasons for increasing in consumer subsidy are steep rises in minimum support or procurement prices, accumulation of large stocks of grains, rising economic costs of food grains, and a constant central issue prices of food grains.

Pictorial representation of per-capita net availability of food grains per annum in India during the study period is given in fig.7. As can be seen in the graph, the per capita net availability of rice and wheat declined from 71kg and 56.5 kg respectively in 2008 to 69.4 kg and 55.9 kg in 2012. However the total availability of cereals and other pulses increased considerably. The per capita availability of food grains has been widely accepted as an indicator of food security at household level. It is estimated that the post harvest loss of total agriculture food grain produce in India is about 7-10% and another 4-5% is lost during the marketing and distribution processes. An overall loss of 11-15% which estimates to 12-16 million metric tons that can feed another 70-100 million people in the country, since the average per capita consumption of food grains in India is 15 kg per month. (Rehman et al., 2012)

Implications for Theory and Practice

One of the most important elements of food security system in India is the provision of food subsidy. Nevertheless, the food procurement and maintenance of buffer stock play an equally significant role. In order to ensure the stability of food grain prices, it is necessary to maintain adequate level of buffer stock as the agricultural production tends to fluctuate due to climatic factors. The current procurement trends of food grains by Food Corporation of India, and other states undertaking decentralized procurement (DCP) would not be able to adequately meet the allocation and the future requirement of food grains as estimated by the Government of India in the twelfth plan period. The total cost of food subsidies contributed to about 2.2 % of agricultural GDP during the 1990s has increased substantially to about 5 % during the last 10 years. The main reason for increase in economic cost of food grains is the higher procurement prices which also leads to rising food subsidies. The open-ended procurement policy adopted by the Government lead to excessive stocks during the last 5-6 years and resultant increase in carrying costs and subsidies. Instead of open-ended procurement policy, a need-based procurement system has to be implemented.

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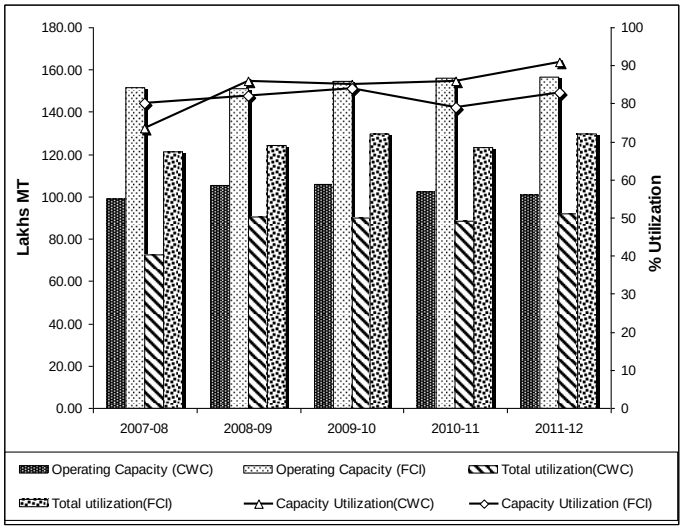
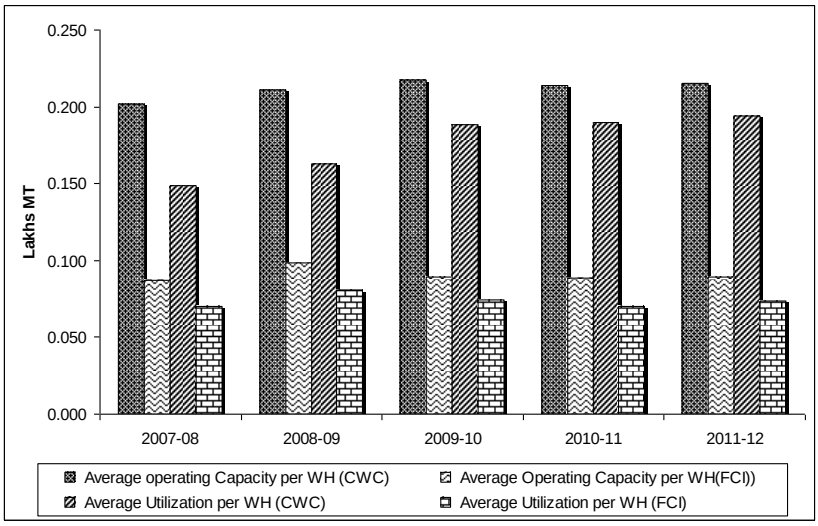
Fig 1: Total operating capacity and percentage of capacity utilization of CWC and FCI warehouses (2007-08 to 2011-12).



Sources: 1. CWC Annual Reports (2008 to 2012)

2. FCI Annual Reports (2008 to 2012)

Fig 2: Average operating capacity and the utilization of storage capacity per warehouse



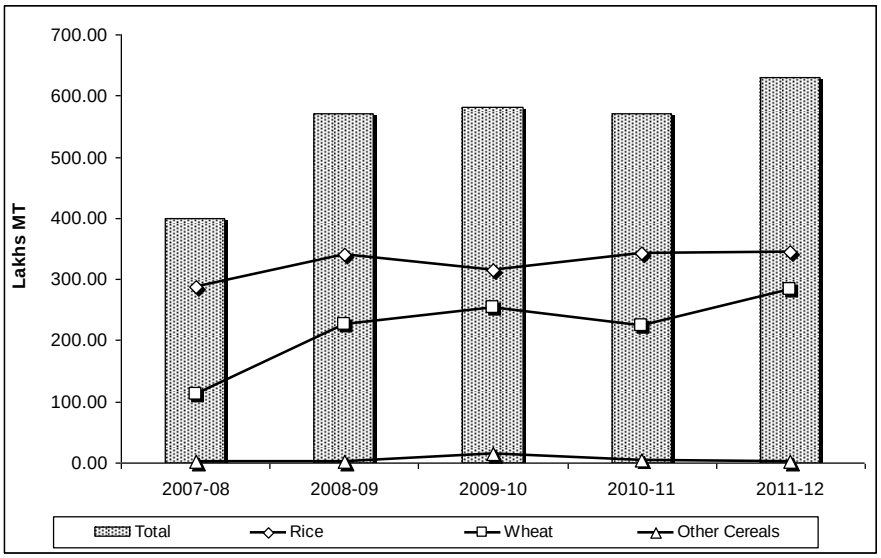
Sources: 1. CWC Annual Reports (2008 to 2012)
2. FCI Annual Reports (2008 to 2012)

Table 1: Financial highlights of CWC and FCI during 2007-2012

		2007-08	**2008-09**	**2009-10**	**2010-11**	**2011-12**
FCI	Capital Employed (Rs. in crore)	10609.6	11070.07	7633.13	6201.93	6069.54
	Turn Over (Rs. in crores)	56791.62	70468.05	86051.5	98920.78	97719.59
	Turnover to Capital Employed Ratio	5.35:1	6.37:1	11.27:1	15.95:1	16.10:1
	Net worth (Rs.in crores)	2433.66	2465.17	2128.52	2157.73	2155.04
CWC	Capital Employed (Rs. in crore)	1011.62	1064.02	1049.15	1171.22	1228.9
	Turn Over (Rs. in crores)	776.23	849.25	987.95	1029.55	1218.65
	Turnover to Capital Employed Ratio	0.77:1	0.80:1	0.94:1	0.88:1	0.99:1
	Net worth	1080.24	1156.32	1140.5	1232.32	1304.08

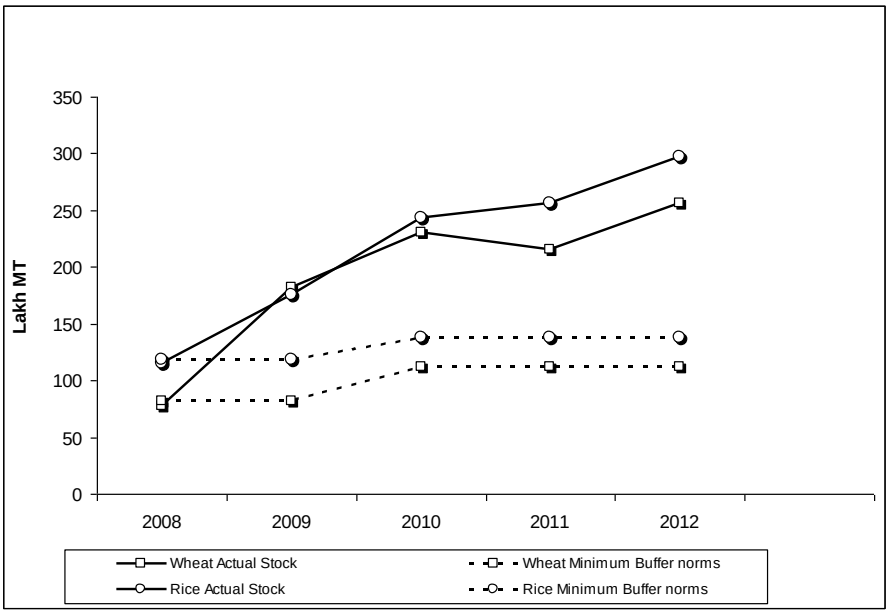
Source: 2nd Annual Report of Warehousing Development and Regulatory Authority (WDRA). 2011-12.

Fig: 3: Aggregate Food grain Procurement by FCI (2007-08 to 2011-12).



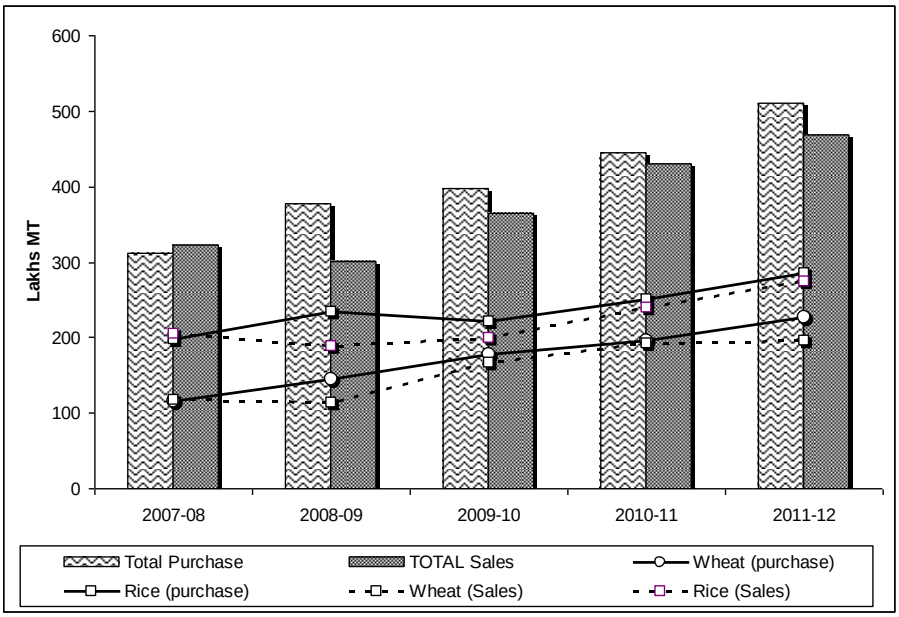
Source: FCI Annual Reports (2008 to 2012)

Fig 4: Stock Position of Food grain (Wheat and Rice) in central pool by FCI and state agencies in India at the beginning of each year. (2008 to 2012).



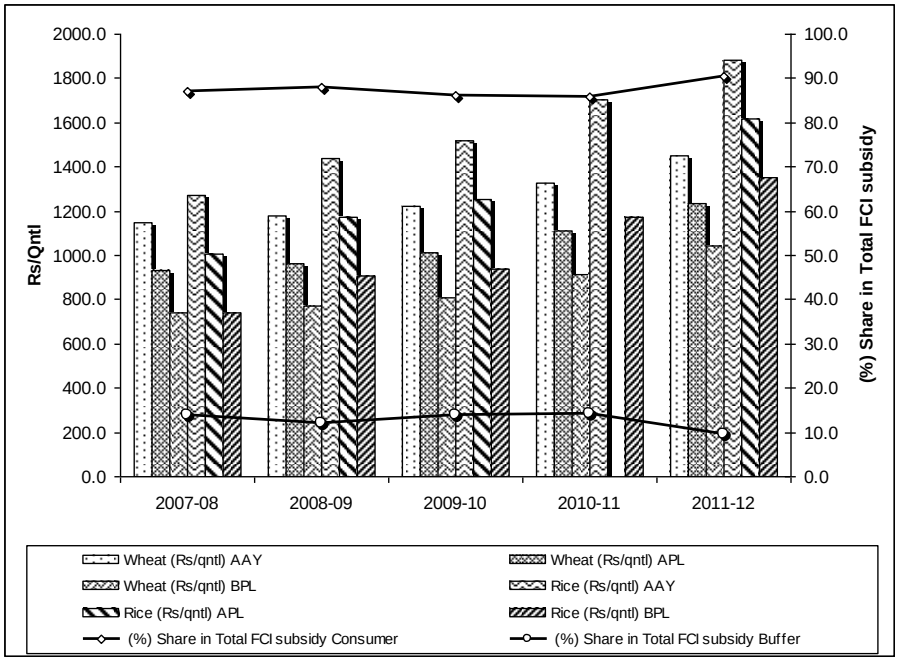
Source: CAG Report on Storage Management and Movement of Food Grains in FCI (2013)

Fig 5: Purchase vs Sales of food grains by FCI (2007-08 to 2011-12).



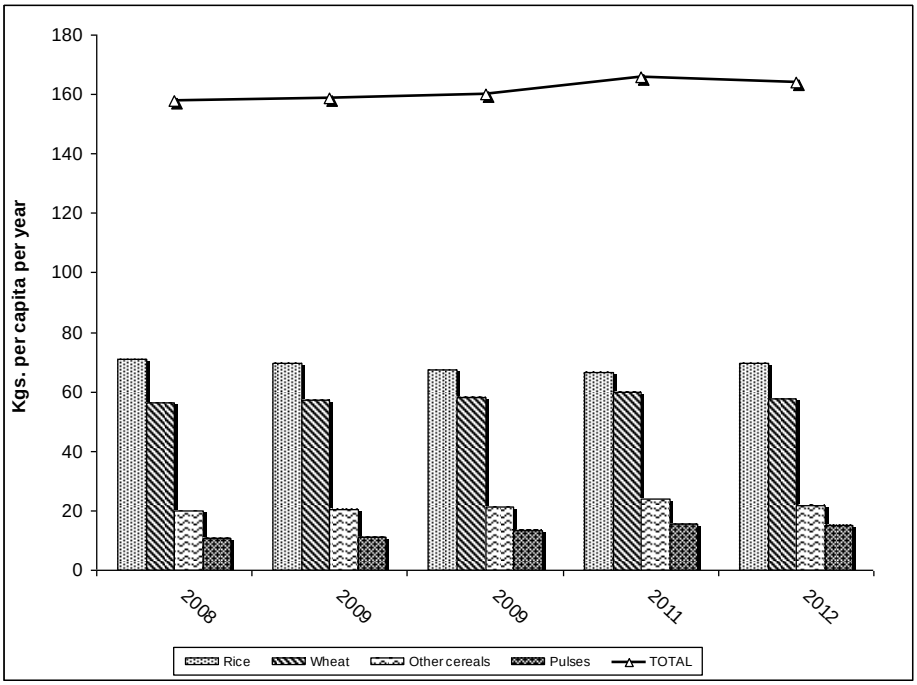
Source: FCI Annual Reports (2008 to 2012)

Fig:6: Consumer subsidy on rice and wheat and percentage share of consumer and buffer subsidy in total FCI subsidy (2007-08 to 2011-12).



Source: 2nd Annual Report of Warehousing Development and Regulatory Authority (WDRA), 2011-12.

Fig:7: Per-Capita net availability of food grains (per annum) in India



Source: Handbook of Agriculture Statistics, Ministry of Agriculture