Report

of

Working Group on Food grains-

Balancing Demand & Supply

During

12th Five Year Plan.

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DEPARTMENT OF AGRICULTURE & COOPERATION
MINISTRY OF AGRICULTURE
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Content

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CHAPTER-I

EXECUTIVE SUMMARY

In the context of the formulation of 12th Five Year Plan, a Working Group on Foodgrains-Balancing the Demand & Supply during 12th Plan period was constituted by the Planning Commission under the Chairmanship of Secretary (A&C) with the Terms of Reference (ToR) as under:-

- To assess the demand and supply of foodgrains during 12th Plan period, inter alia keeping in view the proposed National Food Security Bill;
- To examine the procurement policies with regard to foodgrains and to suggest measures relating thereto.

2. The Working Group in its First meeting held on 6th May, 2011 decided to constitute Two Sub-Groups (i) to Assess Demand & Supply of Foodgrains; and (ii) to Examine Procurement Policies with regard to Foodgrains. The Sub-Groups were advised to finalize their analysis and recommendations in a time bound manner. The Reports of the Sub-Groups were discussed in the Second meeting of Working Group held on 12th August, 2011. A copy of the minutes is **Appended**.

3. With the sustained economic growth, increased attention to social security programme and increasing urban population, demand for food items is not only increasing but is also showing changing dietary preferences. A sizeable portion of the population is still living below the poverty line and has no access to adequate food because of their low purchasing power. Hon'ble Prime Minister in his address at 83rd Foundation Day of Indian Council of Agricultural Research (ICAR) has also made a mention that total demand for food grains is projected to touch 280 million tones by the year 2010-21. National Food Security Bill propose a coverage of up to 75% of total rural population with at least 46% population belonging to priority households and up to 50% of the total urban population with at least 28% population belonging to priority households would have 7 Kg of foodgrain per person per month. Besides, general household would also have entitlement of 3 Kg of foodgrain per person per month. In addition, the extreme climatic events like drought or flood also play a role both in supply and demand of the foodgrains.

4. An analysis of 9th, 10th & 11th Five Year Plan (FYP) has been attempted by the Sub-Group-I on the projected demand of food grains against the rural absorption. It is noticed that projected demand exceeded actual absorption in a wide range that varies from 5 million tones (2%) in 9th Plan to 18 million tones (7%) in the 10th Plan. It has also been observed that the absorption is better during good supply years. The report of Sub-Group-I indicates that domestic demand of foodgrains during the terminal year of 12th FYP could not be more than 252 million tonnes.

5. However, in another analysis based on different indicators, Dr. Ramesh Chand, Director, NCAP, a member of the same sub-group and also member of Steering Committee on Public Distribution System, Storage of food grain & Consumer Protection for the formulation of the 12th Five Year Plan (2012-17), has projected demand of 257-260 million tones for terminal year of 12th FYP. The demand projections of 260 million tonnes is based on production of Rabi 2009-10 and Kharif 2010-11 less export plus import and less changes in buffer stock. This assessment was presented by him in Third Meeting of Steering Committee on Agriculture for 12th Five Year Plan held on 17th-18th August, 2011 at Chennai. Considering the wide disparity in assessment of demand within the Sub-Group that range from a level of 216 – 250 million tones and 257 – 260 million tones, a view will have to be ultimately taken by the Steering Committee on the underlying assumptions, parameters and values considered in the two approaches for finalizing the demand projection for 12th FYP. This Working Group upon considering the two assessments feels that following factors need to be kept in mind for making any recommendation.

i) There is consensus that the absorption is better during good supply years as is evident from the Table 2.6 included in the report of Sub-Group-I. This is an important observation as the reference year of 2009-10 considered by Sub-Group-I for calculating normative demand was a drought year. Thus, the absorption would be less in the short supply year. Any projection based on this reference year would be an under estimation of real demand. Even the behaviouristic demand consumption figures taken from NSSO survey for 2009-10 would be suffering from under estimation for the same reason. This is corroborated by the fact that further there are no commensurate figures available on comparative increase in consumption of other commodities like milk, eggs, meat, fruits etc. in lieu of reduced demand for cereals.

ii) Secondly, for cultural and religious reasons, demand for non-cereal commodities might not increase in relatively short time frame of five years. Besides for non-availability of

Pulses, fruits and vegetables there would still be increased consumption demand for cereals to provide the needed nutrients. Lastly, estimation based on models and data collected through periodic Household surveys cannot be mathematically perfect to forecast the demand with that accuracy. Past trends show that there was variation ranging from 2-8% to actual demand. With the coming into force of Food Entitlement Bill, there would be need to maintain minimum stock level of cereals to effectively service the statutory obligations of provisioning in kind the food grains to meet the demand by way of entitlement. To that extent demand would increase.

iii) Considering all the above facts, the group is of the view that the demand projection for 12th Plan should be in the range of 255 to 260 million tones of food grains.

6. As regards the procurement policies, the Sub-Group-II has discussed issues relating to procurement both in FCI vs DCP States, declining trend of FCI in procurement, wide range of taxation in different States ranging from 0.5% (West Bengal) to 14.5% (Punjab), creation of infrastructure, use of silos and mode of payments to farmers in their report. The following recommendations may be considered:-

6.1 The States may take a better decision for opening of purchase centres as per their needs. Therefore, all States may be directed to become DCP States.

6.2 The states may consider a cadre for quality control and accounts to ensure quality of procurement and management of records.

6.3 Allotment of Mandies by the States to FCI on a long term basis to facilitate infrastructure development and effective procurement operations.

6.4 Effective computerization for correct recording and reporting of arrivals and procurement at APMCs and purchase centres.

6.5 Electronic transfer of payment to the farmers on a pattern followed by Madhya Pradesh.

6.6 A High Level Committee (HLC) has accorded approval on 25.07.2011 for total storage capacity of 167.97 lakhs tons through private investors, CWC and SWC on the basis of storage gaps in different States. In case of eastern States namely Bihar, Jharkhand and West Bengal, where response from privet investors is poor, Government may provide funds for creation of storage infrastructure.

6.7 Construction of silos at strategic locations and use of portable storage structure for need based deployment as is operational in Argentina and other countries.

6.8 The total fund subsidy in GOI budget of 2011-12 for FCI was Rs.47, 239 crores against of which the estimated food subsidy of FCI alone is about Rs.77, 491 crores. Besides arrears of Rs. 11,743 crores of FCI were due as on 1/04/2011. In addition, there is subsidy requirement for DCP States, which is released directly by GOI.

6.9 Setting up of a High Level Committee to study and recommend procurement incidentals.

6.10 Rationalization of State Taxes and Levis at the Mandi level.

7. A Deficiency Price Payment Mechanism could be considered instead of MSP operations in places where procurement infrastructure is inadequate. Under this mechanism, farmers, who wish to sell his produce, may get it registered with APMC. He could sell his produce in the APMC on the prevailing price and if price fell below MSP, the difference between MSP and market price could be paid to him directly. Alternatively, an incentive of Rs. 2500/- per ha as deficiency price payment or as an alternative payment of MSP + 10% incentive over MSP as procurement price for the quantity of food grain procured and given to Central pool, provided taxation does not exceed 5%.

8. The Working Group is of the view that the demand of food grains for terminal year of 12^{th} Plan period inter alia keeping in view the proposed National Food Security Bill should be in the range of 255 to 260 million tones. However, final view on the divergent opinions within the group based on different sets of parameters should be taken by the Steering Committee. The Working Group also recommends that all the States may be directed to become DCP States for procurement. Creation of a cadre for quality control and accounts by the States, effective computerization for correct recording, electronic transfer of payments to the farmers and uniform taxation across the country have also been suggested by the Working Group. The Working Group also supports for opening of more procurement centres and creation of storage infrastructures in the Eastern States like Bihar, Jharkhand and West Bengal.

Appendix

Minutes of the Second Meeting of the Working Group "Foodgrains – Balancing the Demand and Supply during 12th Plan" held on 12th August, 2011.

The Second Meeting of Working Group on "Foodgrains – Balancing the Demand and Supply during 12th Plan" was held on 12th August, 2011 under the Chairmanship of Secretary (A&C) in Committee Room No. 139, Krishi Bhawan, New-Delhi. List of participants is appended.

2. Secretary (A&C) welcomed the members of Working Group and requested CMD, FCI and Chairman, Sub-Group-II first to take up his report on procurement policies of food grains.

3. The highlights of the presentation of report of Sub-Group-II are given as under:-

3.1 Procurement ranged from 99.9% of arrivals in Punjab & Haryana to less than 5% in Eastern Indian States.

3.2 Share of FCI is decreasing and State procurement is increasing.

3.3 Wide range of taxation from 0.5% in West Bengal to 14.5% in Punjab.

3.4 Storage capacity being built up based on highest stock of last 3 years in procurement States may not be fully utilized. The infrastructure created may be considered as strategic infrastructure in the interest of food security of the nation.

3.5 Use of silos is more cost effective as well as safe for grain storage. Therefore, construction of silos may be considered at strategic locations.

3.6 Payment made through Adtiyas and directly to farmers.

3.7 The following recommendations/suggestions were made:-

3.7.1 The States may take a better decision for opening of purchase centres as per their needs. Therefore, all States may be directed to become DCP States.

3.7.2 The states may consider a cadre for quality control and accounts to ensure quality of procurement and management of records.

3.7.3 Allotment of Mandies by the States to FCI on a long term basis to facilitate infrastructure development and effective procurement operations.

3.7.4 Effective computerization for correct recording and reporting of arrivals and procurement at APMCs and purchase centres.

3.7.5 Electronic transfer of payment to the farmers on a pattern followed by Madhya Pradesh.

3.7.6 A High Level Committee (HLC) has accorded approval on 25.07.2011 for total storage capacity of 167.97 lakhs tons through private investors, CWC and SWC on the basis of storage gaps in different States. In case of eastern States namely Bihar, Jharkhand and West Bengal, where response from privet investors is poor, Government may provide funds for creation of storage infrastructure.

3.7.7 Setting up of a High Level Committee to study and recommend procurement incidentals.

3.7.8 The total fund subsidy in GOI budget of 2011-12 for FCI was Rs.47, 239 crores against of which the estimated food subsidy of FCI alone is about Rs.77, 491 crores. Besides arrears of Rs. 11,743 crores of FCI were due as on 1/04/2011. In addition, there is subsidy requirement for DCP States, which is released directly by GOI. After implementation of Food Security Act, the actual food subsidy may reach about Rs. 1.00 Lakh crores.

3.8 Director, NCAP informed that he has also been associated as Technical Adviser in preparation of the report of CAG on storage and procurement. He further suggested that a Deficiency Price Payment Mechanism could be considered instead of MSP operations in places where procurement infrastructure is inadequate. It was explained that under this mechanism, farmers, who wish to sell his produce, may get it registered with APMC. He could sell his produce in the APMC on the prevailing price and if price fell below MSP, the difference between MSP and market price could be paid to him directly.

3.8 (a) Alternate portable storage structure for need based deployment as is operational in Argentina and other countries should be considered.

3.9 Chairman, CACP also advocated an incentive of Rs. 2500/- per ha as deficiency price payment or as an alternative payment of MSP + 10% incentive over MSP as procurement price for the quantity of food grain procured and given to Central pool, provided taxation does not exceed 5%. A detailed note would be given by CACP in this regard. It was also added that a maximum quantity of food grains to be procured in accordance with the capacity of the system to absorb, may be decided by the Government to facilitate the decision to export the excess quantity. He also quoted an example of crop holiday and crisis emerged in A.P. for want of procurement of rice during 2010-11.

4. Chairman, CACP and Chairman of Sub Group-I on Food Grains: Demand and supply gave a brief background that how the group has prepared the report on the basis of different approaches namely Household consumption approach; normative; behavioural and absorption approach. The data on projected demand and absorption in terminal year of IX, X and XI plan and difference there to has also been taken into account to make the demand more realistic. Thereafter, the report of Sub-Group-II was presented by Economic Adviser, DES, DAC. The highlights of the report are summarized as under:-

4.1 Data of projected demand and actual absorption of foodgrains in terminal years of last 3 Plans.

4.2 Impact of HYVs and increasing demand for feed on Seed, Feed and Wastage.

4.3 Per capita consumption and net availability of food grains as per NSS.

4.4 Greater support for production of oilseeds and pulses during XII Plan period to minimize the import.

4.5 Use of production data for the period of 2005-06 to 2009-10 to work out supply projections.

4.6 Projected a demand of 245 million tonnes of foodgrains.

5. It emerged during the discussions that the numbers need to re-work to justify a wide gap between 260 million tonnes of foodgrains projected earlier and proposed demand of 245 million tonnes by Sub-Group-I. Agriculture production varies year to year depending upon climatic conditions. Similarly, absorption of Rabi crops needs to be considered in subsequent year and not in same year to reflect actual consumption. It was suggested that moving average of a triennium may be considered for making more realistic projections.

6. The following action points were emerged during the meeting:-

6.1 Director, NCAP and Chairman, CACP may provide their detailed input about Deficiency Price Payment Mechanism to Chairman, Sub-Group-II for making necessary recommendations in the report.

6.2 Sub-Group-II may consider making use of moving average of triennium for making the demand and projections more realistic and may incorporate the reasons for the gap between the projections, if any.

6.3 The recommendations of CAG about procurement and storage and technical input from Director, NCAP may be looked into by Chairman, Sub-Group-II and necessary modifications may be carried out in the report.

6.4 NSSO household level consumption figures of 2009-10 could be an aberration considering that it was a drought year. Calculations need to be reconsidered to provide for necessary corrections.

6.5 The modified reports of both Sub-Groups -I & II may be submitted to DAC by 25th August, 2011, which could be discussed in a next meeting before 31st August, 2011.

Meeting ended with vote of Thanks to the Chair.

CHAPER-2

Report of Sub-Group-I: To Assess Demand & Supply of Foodgrains

Executive summary

The Sub-Group reviewed the forecasts of last 3 working plans before forecasting the demand and supply forecast for the 12th plan. A detailed and in-depth review has been carried out of the projected demand for foodgrains and actual "absorption" of foodgrains in the system, where absorption includes not only direct household consumption at home and outside home, but also that is "absorbed" in seed, feed, wastage, industrial consumption as well as changes in private sector stocks (such as those with traders, manufacturers, farmers and even consumers). The projected supply of foodgrains was also studied and compared with the actual production of foodgrains during the last three Five Year Plan periods. This gives a much better handle to estimate the demand and supply of foodgrains during the 12th Five Year Plan. A summary of the projected demand and supply and actual absorption and production of cereals and pulses, and the deviations between the projected and actual values of demand and supply during the last three Plans is given in below:

Comparison between projected and actual demand in Terminal years of the FYPs

Five Year Plans (FYPs)	Commodity	Actual Absorption in the Terminal Year	Projected Demand	Difference in Actual Absorption and Projected demand	Projected supply	Actual production	Difference in Actual Production and Projected Supply
9th FYP (1997-98 to 2001-02)	Rice	91.95	90.75	1.2	95.5	93.34	-2.16
	Wheat	67.96	68.5	-0.54	75.5	72.77	-2.73
	Coarse Cereals	33.49	35.25	-1.76	34.5	33.38	-1.12
	Cereals	193.4	194.5	-1.1	205.5	199.48	-6.02
	Pulses	15.42	19.5	-4.08	17.5	13.37	-4.13
	Foodgrains	208.82	214.25	-5.43	223	212.85	-10.15
10th FYP (2002-03 to 2006-07)	Cereals	200.25	215.53	-15.28			
	Pulses	16.22	18.72	-2.5			
	Foodgrains	216.47	234.26	-17.79	230	217.28	-12.72
11th FYP (2007-08 to 2011-12) *	Cereals	212.45	224	-11.55			
	Pulses	20.48	20	0.48			
	Foodgrains	232.93 *	244	-11.07	240	241.57 *	1.57

* Figure for 2010-11.

2.1 It may be observed that in all the FYPs, the projected demand for foodgrains exceeds the actual absorption, and the projected supply also exceeds the actual production during the 9th and 10th Plan. The range varies from 5 million tonnes in the terminal year of the 9th FYP to 18 million tonnes in the 10th FYP on the demand side, and 10 to 13 million tonnes on the supply side respectively.

2.2 For the 12th FYP, the WG undertook this exercise of demand projections for cereals, pulses and foodgrains, which was the main terms of reference of this WG. However, the WG also delved into oilseeds and sugarcane to see how the demand patterns are changing across major edible crops. Four different approaches were used to estimate demand side: (1) household consumption approach; (2) normative consumption approach; (3) behaviouristic approach; and finally (4) "absorption" approach where actual demand absorption or disappearance of quantity of a commodity in a particular year is estimated by addition of Production and net Imports minus changes in government stocks. Any addition to government stocks over the year reduces the supply for consumption (absorption in the system) and vice versa. In the absence of any information about the stocks held with traders and consumers only changes in Government stocks are taken. Thus the actual absorption in the economy would also include the changes in private sector stocks with traders and farmers, and this component may fluctuate quite a bit from year to year. In fact this acts like a sponge in the system and absorbs grains (like water) when the supplies are good and when government rules allow the private sector to hold unlimited stocks. In years of scarcity, when government puts stock limits, this contracts and releases grains in the system for consumption.

2.3 A summary of the demand projections based on the above approaches is given below:

Projected Demand for Foodgrains for the Terminal Year of the 12th FYP (2016-17) under Four Different Methods

(In million tonnes)

	Rice	Wheat	Coarse cereals	Cereals	Pulses	Foodgrains	Oilseeds	Sugarcane
Household consumption	98	78	29	205	13	218	30	137
Normative Approach								
Sedentary				181	37	218	42	216
Moderate				204	41	245	48	198
Behaviouristic Approach (1)	(Base line consumption = Per capita availability TE 2010-11)							
GDP 9%	97	86	34	218	24	241	70	266
GDP 8%	97	86	35	217	23	240	68	265
Behaviouristic Approach (2)	(Base line consumption = Per capita consumption NSS 2009-10 and SFW as estimated by NCAP)							
GDP 9%	106	88	26	220	22	242	79	257
Absorption Approach	92	87	38	216	25	240		
Range	92-106	78-88	26-38	181-220	13-41	218-245	30-79	137-266

2.4 It is observed that the demand projections given by the above mentioned four approaches differ significantly. Foodgrains requirement under the household consumption approach works out to 218 million tonnes by the terminal year of the 12th Five Year Plan. Under the normative approach it works out to 218 million tones under sedentary life style and 245 million tones under moderate life style. Under the behaviouristic approach, foodgrains requirement in the terminal year of the 12th Plan works out to 241 million tones if we take triennium average of 2008-09 to 2010-11 as the availability in the base year and 9 per cent rate of growth in GDP, and 240 million tones if the rate of growth is assumed to be 8 per cent per annum. In a different scenario where we take the NSS 2009-10 estimates of per capita consumption in the base year with a 9 per cent rate of growth in GDP, foodgrains requirement works out to 242 million tonnes. Under the absorption approach, foodgrains requirement work out to 240 million tonnes if we project the TE 2010-11, actual absorption by the observed compound annual rate of growth in absorption during the last five years.

2.5 Under an alternative scenario, projections were made based on five year moving average with 5 year point to point CAGR. The point to point Plan wise rates of growth in

absorption are computed for the 5 year moving average and it is observed that the compound annual growth rate in absorption was 0.73 per cent during the Ninth Plan, 1.25 per cent during the 10th Plan and 1.36 per cent during the 11thplan (from 2005-06 to 2010-11). On the basis of the absorption in the terminal year of the 11th Plan of say around 230 million tonnes and with the rate of growth of 1.4% which would take care of the rate of growth in population and the small elasticity of demand for cereals the requirement for the 12th Plan, the estimate for the terminal year works out to be about 246.56 million tones.

2.6 But if one takes the base year absorption at the terminal years of the 11th FYP to be a 3 year moving average of actual absorption, it turns out to be just 220.38 million tonnes (and not 230 mt) centered at 2009-10. If one applies 1.4 percent CAGR to this base absorption to get a projected absorption for the year 2016-17, it turns out to be 242.91 million tonnes for 2016-17. Further, if one takes the base year based on 5 year moving average of actual absorption (218.62 mt centered at 2008-09) and then projects for 2016-17 on the basis of 1.4 percent CAGR, the projected demand for foodgrains turns out to be 244.34 million tonnes . The upshot of these alternative scenarios is that whichever way one looks at, the projected absorption of foodgrains in 2016-17 is likely to be between 242 to 246 million tonnes. The CAGR of 1.4 percent already has some buffer as the actual CAGR based on last 5 years has been between 1.36 to 1.38 percent, depending upon whether one takes a five year moving average of absorption or 3 year moving average.

2.7 A semi log function on time trend of the type, log Yi = a + b Ti, where Y = actual absorption of foodgrains in year i, was also applied. Based on this method, the forecasted absorption of foodgrains in the terminal year of 12th Plan works out to 236.1 million tones with a standard deviation of the error term 8.33 and a range from -19.94 to 15.84, which means the projected figure, could fluctuate between 216 and 252 million tones. Complete results are given in **Annexures.** This high fluctuation can be attributed to the stocks held by private traders which work as a sponge depending upon the market conditions.

2.8 The Working Group is of the view that the domestic demand for foodgrains during the terminal year of the 12thFYP, i.e. 2016-17 could not be more than 245 - 252 million

tonnes maximum. Any amount of foodgrains produced beyond 252 million tonnes will have to be either exported or added to stocks.

2.9 While making the supply projections of foodgrains the Working Group followed five methods namely simple regression on time trend as the explanatory variable with 10 years production, exponential method of the double log form, multiple regression method (by taking quantity of fertilizers consumption per hectare, proportion of irrigated area under the crop and area under production for each crop as the explanatory variables), average annual growth rates and compound growth rate method. The projected supply of foodgrains by the terminal year of the 12th FYP, i.e., 2016-17 under different methods varies from 258 to 272 million tones is as under:-

Projected Supply in the Terminal Year of the 12th Five Year Plan

(Million tonnes)

Methods	Rice	Wheat	Coarse cereals	Cereals	Pulses	Foodgrains	Oilseeds	Sugarcane
Simple regression	104.2	93.2	44.7	242.1	18.4	260.5	37.3	365.1
Exponential growth	106.0	95.2	46.2	247.3	19.0	266.3	40.8	371.4
Multiple regression	102.8	93.0	43.8	239.7	19.0	258.7	35.8	369.4
Average annual growth	97.9	103.7	48.9	250.6	21.4	272.0	32.5	411.4
Compound annual growth	102.5	98.9	41.9	243.3	18.0	261.3	30.0	396.4
Range	98-106	93-103	42-48	240-251	18-21	259-272	30-41	365-411

2.10 Based on the above projections, the comparative demand and supply scenario that emerge at the terminal year of the 12th Plan is as under:

Broad Range of Projected Demand and Supply of Foodgrains, Oilseeds and Sugarcane

(In million tones)

Crops	Range of Demand Projections	Range of Supply Projections
Cereals	181-220	240-251
Pulses	13-41	18-21
Foodgrains	218-252	259-272
Oilseeds	30-79	30-41
Sugarcane	137-266	365-411

2.11 Dr. Ramesh Chand, Director, NCAP, a member of the same sub-group has proposed a demand projection of 257.70 million tonnes at the negative growth rate of 0.40% of direct household consumption and 260 million tonnes at the negative growth rate of 0.20%. His projections are based on the production of Rabi 2009-10 (114.16 million tonnes) and Kharif 2010-11 (120.36 million tonnes) less export (2.88 million tonnes) plus import (2.02 million tonnes) and less change in buffer stock (1.60 million tonnes), which comes to 235.26 million tonnes. The details of projections are given as under:-

Source	**Composition**	**Growth Rate**	**Total**	**Growth Rate**	**Total**
Household	0.76	-0.40	-0.304	-0.20	-0.152
Seed	0.03	0.00	0	0	0
Wastage	0.03	1.50	0.045	1.50	0.045
Other Uses	0.18	2.70	0.486	2.70	0.486
Sum	0.10	0.23	0.227	0.38	0.038
Population Growth	-	1.30	1.30	1.30	1.30
Total	**-**	**-**	**1.527**	**-**	**1.68**

Year-wise demand projections:-

Year	**Projections @ -0.40%**		**Projections @ -0.20%**	
	Growth	**Demand**	**Growth**	**Demand**
2011-12	235.26 X 1.527	238.85	235.26 X 1.68	239.21
2012-13	238.85 X 1.527	242.49	239.21 X 1.68	243.23
2013-14	242.49 X 1.527	246.20	243.23 X 1.68	247.32
2014-15	246.20 X 1.527	249.96	247.32 X 1.68	251.47
2015-16	249.96 X 1.527	253.78	251.47 X 1.68	255.69
2016-17	253.78 X 1.527	257.65	255.69 X 1.68	260.00

The commodity-wise demand projections as suggested by NCAP for 12th Plan are proposed as under:

(Million Tonnes)

Commodity	2004-05	2011-12	2016-17	Growth Rate (%)
Rice	93.96	103.48	110.21	1.10
Wheat	70.04	80.79	89.06	1.90
Coarse Cereals	31.49	34.60	36.40	0.27
Total Cereals	195.49	218.87	236.57	1.29
Pulses	14.91	18.84	21.68	3.09
Foodgrains	**210.40**	**237.71**	**257.34**	**1.45**

Report of Sub-Group–I

To assess the Demand and Supply of Foodgrains during the 12th Plan (2012-13 to 2016-17) inter alia keeping in view the proposed National Food Security Bill.

1. Review and Validation of Forecasts of Demand and Supply of Foodgrains in the last three Five Year Plans (FYPs)

1.1 Forecasting demand and supply of any agri-commodity is a challenging task. Just before the launch of any Five Year Plan (FYP), Working Groups are set up that ritually undertake this exercise of forecasting demand and supply of agri-commodities, especially foodgrains. These Working Groups use the best available techniques of the time, make certain assumptions about the future rates of growth of overall GDP, population, likely trends in production, etc., and then based on their best judgment churn out certain numbers regarding the likely demand and supply situation of those commodities during the course of the next five years or so. These forecasts guide in fixing targets, and also help in formulating policies and allocating resources across various agri-programs to achieve those targets.

1.2 But seldom in the past, has any Working Group ventured to look back and validate how far the *ex-ante* forecasts of the previous FYPs turned out to be closer to *ex-post* reality. This Working Group plans to do exactly that before forecasting the demand and supply of foodgrains till 2016-17. We undertake this exercise for the last three FYPs, i.e, Ninth FYP (1997-98 to 2001-02), Tenth FYP (2002-03 to 2006-07); and Eleventh FYP (2007-08 to 2011-12) before we attempt a forecast for the Twelfth FYP (2012-13 to 2016-17).[1] It is an important validation exercise as it will reveal the degree of deviation between the forecasts and actual reality, and thus help us to see the appropriateness of the methodology used. This would then offer us an opportunity to find out the reasons behind that and hence take a corrective action, if needed, so that the forecasts of the 12th FYP could hopefully turn out to be more robust and closer to reality than perhaps has been the case in the past. Accordingly a detailed study was done of the projected demand for foodgrains and actual "absorption" of foodgrains in the system, where absorption includes not only direct household consumption at home and outside home, but also that

[1] There are several other studies also available in literature, which have attempted to forecast demand and supply of agri-commodities. We have deliberately avoided a review of those in this report for want of space and clarity and concentrated only on the last three FYP documents and their respective working group reports.

is absorbed in seed, feed, wastage, industrial consumption as well as changes in private sector stocks (such as those with traders, manufacturers, farmers and even consumers). The projected supply of foodgrains was also studied and compared with the actual production of foodgrains during the last three Plan periods. This gives us a much better handle to estimate the demand and supply for foodgrains during the 12th Plan period.

A Brief Review of Methodologies and Validation of the Forecasts of the Working Groups during the last three Five year Plans.

Methodology and Forecasts of Demand for the Ninth Five Year Plan (1997-98 to 2001-02):

1.3 The Working Group for the Ninth Five Year Plan projected demand for foodgrains, sugar/jaggery, oilseeds and milk for the terminal year of the Ninth Plan for the purpose of working out physical targets of agricultural production. The projections relate to domestic requirement only and exclude exports demand. Two approaches were used for projecting final consumption demand:-

1. Normative Approach
2. Behaviouristic Approach

Normative Approach determines consumption levels by using normative requirements of cereals and other food articles as recommended by the National Institute of Nutrition (NIN), Hyderabad.

Behaviouristic Approach determines consumption levels taking three parameters into consideration: (a) annual growth in population which is taken to be 1.7% during the Ninth Plan; (b) base level consumption, which is projected on the basis of time-series trend of net per capita availability of various commodities between 1981-82 to 1994-95; (c) the total final consumption requirement is estimated by multiplying net per capita availability with base year population. The net per capita availability is arrived at by dividing the net production plus net of import and export minus changes in government stock, by population.

Changes in Consumption Expenditure: Two scenarios regarding per capita final consumption expenditure have been considered, one relating to 6% growth rate of GDP and other relating to 7% growth rate of GDP. Given the estimated elasticity of private consumption with respect to GDP to be 0.8825 and annual population growth rate of 1.7%, under two scenarios, the per capita final consumption growth rate works out to be 4.5% and 3.6% respectively. The consumption

elasticities of various commodities have been estimated utilizing the result of the 50th Round of National Sample Survey on Household Consumer Expenditure (1993-94).

Out of the gross production of foodgrains, part of it utilized for seed, feed of the cattle and certain losses in storage, transportation etc. is deducted to obtain net production to work out the total and per capita availability of foodgrains in the country.

The seed ratio is estimated around 3% of total production of foodgrains. It is assumed that the growth rate of Animal Husbandry to be 6%, the feed requirement was estimated to be 11.40 million tonnes in 2001-02. The storage loss was taken as 2% of the total production.

1.4 Taking all the above factors into consideration the demand for various agricultural commodities for the terminal year of 9th plan, i. e, 2001-02 was projected as given below:-

Projected Demand for agri-commodities in the Terminal Year of the 9th FYP (2001-02)

(Million Tonnes)

Commodity	Normative Approach	Behaviouristic Approach	
	Based on consumption norms given by NIN	Assuming 7% GDP growth rate	Assuming 6% GDP growth rate
Rice	-	91.50	90.75
Wheat	-	70.25	68.50
Coarse Cereals	-	35.25	35.25
Cereals	177.30	197.00	194.75
Pulses	17.20	19.50	19.50
Foodgrains	194.50	216.50	214.25
Oilseeds	21.20	25.75	25.00
Sugarcane	104.50	332.50	320.00
Milk	52.50	95.75	90.50

Methodology of Supply projections during the Ninth Five Year Plan (1997-98 to 2001-02):

1.5 Supply projections of various commodities require the estimation of base level production. The base level production was estimated after taking the average production in the triennium ending 1995-96 and projecting it for 1996-97 based on the past rate of growth observed during the period 1980-81 to 1994-95. It was observed that since this would be a very

short period of two years of production, it was assumed that there would be no extension of area under the crops and production estimates for 1996-97 may be made taking into consideration the rate of growth of productivity for these crops during the period 1980-81 to 1994-95. The base level of production for foodgrains for 1996-97 is taken as 198.53 million tonnes and for oilseeds and sugarcane is taken as 23.0 and 276.25 million tonnes respectively. Different methods were used for making supply projections which considered the past rates of growth in fertilizer consumption, growth in crop area, cropping intensity, irrigated area etc.

1.6 Taking various factors into consideration the most likely supply level for various agricultural commodities for the terminal year of 9th plan i.e 2001-02 was projected as given below:

Supply projections for the Terminal Year (2001-02) of the 9th Five Year Plan

Commodity	Supply Projection Level (Million Tonnes)
Rice	95.50
Wheat	75.50
Coarse Cereals	34.50
Pulses	17.50
Total Foodgrains	223.70
Oilseeds	27.50
Cotton (Lakh bales of 170 kgs)	148.00
Sugarcane	325.00

The actual demand and supply situation of Ninth Five Year Plan:

1.7 A comparison between the projected demand and supply and the actual demand and supply shows how close the projections are to the reality and thus establishes the credibility of methodology used in projections. For this purpose, a comparison is being drawn between the projections of demand and supply of the foodgrains made by the Planning Commission and the actual situation during the 9th Five Year Plan.

1.8 During the Ninth Plan the growth rate of GDP was around 6%, so for the comparison purpose, demand projections under the Behaviouristic Approach with 6% GDP are being taken. The actual demand in the terminal year, i.e., 2001-02 is estimated by addition of Production and net Import minus changes in Government stock. This may be called as “absorption” or “actual

disappearance" in the system and would include not only direct human consumption, but also seed, feed, wastage, as well as any usage for industrial purposes and changes in private sector stocks, including that of traders, millers, farmers, and even consumers. Table given below compares the actual absorption with projected demand. It is clear from the Table that the projected demand for foodgrains is over-estimated by around 8 million tonnes for the year 2001-02. It may also be noted that the over-estimation has been more in pulses and coarse cereals than in wheat and rice.

Comparison of Actual Absorption (demand) and Projected Demand for Foodgrains in the Terminal Year (2001-02) of Ninth Plan

(Million Tonnes)

Commodity	Production	Export	Import	Net Import	Change in Govt stock	Total Absorption in the Terminal Year	Projected Demand	Difference in actual Absorption and Projected demand
1	2	3	4	5	6	7 (2+5-6)	8	9
Rice	93.34	2.21	0	-2.21	0.81	91.95	90.75	1.2
Wheat	72.77	2.65	0	-2.65	2.15	67.96	68.50	-0.54
Coarse Cereals	33.38	0.14	0	-0.14	-0.25	33.49	35.25	-1.76
Pulses	13.37	0.16	2.22	2.06		15.42	19.50	-4.08
Foodgrains	212.85	5.16	2.22	-2.94	1.09	208.82	214.25	-5.43

Sources: 1. Planning Commission for demand

2. DGCIS, Kolkata for Export & Import

3. DES, M/o Agriculture for Production

4. Food Bulletin, Food & Public Distribution, M/o Consumer Affairs

1.9 Now, the supply side picture can also be seen. Actual production of Foodgrains during the terminal year of Ninth Five Year Plan is compared with the projected supply of the terminal year of the Plan in the Table given below.

Difference between actual production and Projected Supply in the Terminal Year

(Million Tonnes)

Commodity	1997-98	1998-99	1999-00	2000-01	2001-02	Projected supply	Difference between Actual Production and Projected Supply
1	2	3	4	5	6	7	8(6-7)
Rice	82.53	86.08	89.68	84.98	93.34	95.50	-2.16
Wheat	66.35	71.29	76.37	69.68	72.77	75.50	-2.73
Coarse Cereals	30.40	31.34	30.33	31.08	33.38	34.50	-1.12
Pulses	12.98	14.91	13.42	11.08	13.37	17.50	-4.13
Foodgrains	192.26	203.62	209.8	196.82	212.85	223.00	-10.15

Source: 1. Planning Commission for supply; 2. DES, M/o Agriculture for Production.

It can be inferred from Table that there is an over-estimation of supply forecasts of foodgrains to the tune of 10.15 million tonnes. The overestimation has been more in pulses than in wheat or rice. In percentage terms, the differences become even more glaring in case of pulses.

1.10 Overall, for the Ninth Plan, the above review reveals that both the demand and supply were overestimated, while the reality turned out to be much lower. The actual demand was lower by about 5.4 million tonnes and actual supply was lower by about 10 million tonnes, compared to the forecasts.

Methodology of Demand projections during the 10thFive Year Plan (2002-03 to 2006-07):

1.11 As in the 9th FYP, two approaches were used even in the 10th FYP for projecting final consumption demand:

1. Normative Approach
2. Behaviouristic Approach

Normative Approach determines consumption levels by using normative requirements of cereals and other food articles as recommended by the National Institute of Nutrition, Hyderabad as basis and multiply it with the consumption unit to work out the demand for a particular period. The consumption unit is calculated by deflating total population with the standard deflator of 1.0696. The requirement towards seed, feed and wastage assumed to be 12.5% of the gross output is also added to arrive at the total requirement for the country as a whole.

Behaviouristic Approach determines consumption levels taking following three assumptions:

i) That population will grow at a compound rate of 1.9% per annum. It may be mentioned that population was assumed to grow at 1.7% per annum during the 9th Plan. This assumption of a higher rate of growth in population during the 10th Plan as compared to the 9th Plan was perhaps due to the observed rate of growth of population of 1.97 % per annum during the decade 1991-2001 as revealed by the census 2001.

ii) The per capita income shall grow at the rate of 4.7% per annum. The household savings are found to be around 20%. So, the growth in per capita income has been adjusted by the rate of savings to work out per capita expenditure.

iii) The expenditure elasticity has been assumed to be 0.15% for cereals and 0.62% for pulses.

Taking all the above factors into consideration the demand for foodgrains for the terminal year of 10th plan i. e 2006-07 was projected as given in the following Table.

Projected Demand for the Terminal Year (2006-07) of 10th Five Year Plan

(Million Tonnes)

Commodity	Normative Approach	Behaviouristic Approach
Cereals	203.71	215.53
Pulses	17.71	18.72
Foodgrains	221.42	234.26

Supply projections during Tenth Plan:

1.12 The supply projections of foodgrains have been done by using various methods and these projections range from 224.80 million tonnes to 243.10 million tonnes in the terminal year 2006-07. However, based on the past year of growth the supply projection of foodgrains was taken to be 230 million tonnes.

Actual demand and supply situation during Tenth Plan:

1.13 The comparison between projected and actual demand of the terminal year is shown in the following Table.

Difference between Actual demand (Absorption) and Projected demand in the Terminal Year (2006-07) of the 10th FYP

(Million Tonnes)

Commodity	Production	Export	Import	Net Import	Change in Govt Stock	Total Absorption in the Terminal Year	Projected Demand	Difference between Actual Absorption and Projected Demand
1	2	3	4	5	6	7 (2+5-6)	8	9
Cereals	203.08	5.52	6.09	0.56	3.40	200.25	215.53	-15.28
Pulses	14.20	0.25	2.27	2.02	-	16.22	18.72	-2.50
Foodgrains	217.28	5.77	8.36	2.58	3.63	216.47	234.26	-17.79

Sources: 1. Planning Commission for demand
2. DGCIS, Kolkata for Export & Import
3. DES, M/o Agriculture for Production
4. Food Bulletin, Food & Public Distribution, M/o Consumer Affairs

A comparison between projected supply and actual production of foodgrains for the terminal year of the Tenth Plan is drawn on similar lines in the following Table**.**

Difference between Actual Production and Projected Supply of Foodgrains in the Terminal Year (2006-07) of the 10th FYP

(Million tonnes)

Commodity	2002-03	2003-04	2004-05	2005-06	2006-07	Projected supply	Difference in Actual and Projected Supply
1	2	3	4	5	6	7	8(6-7)
Foodgrains	174.77	213.19	198.36	208.60	217.28	230.00	-12.72

Sources: 1. Planning Commission for projected supply
2. DES, M/o Agriculture for Production

As seen from the above tables, there is an overestimation of 17.79 million tonnes in the demand projections and 12.72 million tonnes in the supply projections of the Tenth Plan.

Methodology of Demand projections during Eleventh Five Year Plan (2007-08 to 2011-12):

1.14 The methodology used in the demand projections for Eleventh Plan is almost similar to the earlier FYPs. The demand is projected using the two approaches i. e Normative and Behaviouristic Approach. Normative Approach estimates demand on the basis of normative requirement of foodgrains, oilseeds and sugar as recommended by the National Institute of Nutrition, Hyderabad and the projected population figures brought out by RGI. Behaviouistic Approach is based on the growth of population and changing behavior of consumption on account of changing per capita income in a growing economy, measured in terms of consumption/ expenditure elasticity. It is assumed that the GDP would grow at 9% per annum, resulting in per capita income growth rate of 7.4% per annum after adjusting for population growth of 1.5% per annum. The expenditure elasticity has been assumed to be 0.15% for cereals and 0.62% for pulses. The seed, feed and wastage ratio is taken as 12.5% of the gross output.

Based on the above, the demand projections for the terminal year (2011-12) of Eleventh Plan are given in the following Table.

Demand Projections of Foodgrains for the Terminal Year (2011-12) of the 11th FYP

(million tonnes)

Commodity	Demand projection
Cereals	224.00
Pulses	20.00
Foodgrains	244.00

It may be noted that the Steering Group of the Eleventh Plan had further jacked up this demand forecast to **251** million tonnes.

Supply side projections:

1.15 The supply level has been estimated using different methods and the most likely projection for the foodgrains is 240 million tonnes for the terminal year of Eleventh Plan.

Actual demand and supply situation during Eleventh Plan

1.16 The comparison between actual demand (absorption) and projected demand is shown in the following Table.

Difference between Actual Demand (Absorption) and Projected Demand for the Terminal Year (2011-12) of the 11th FYP

(Million Tonnes)

Commodity	Production*	Export	Import	Net Import	Change in Govt Stock	Actual Absorption in the Terminal Year	Projected Demand	Difference between Absorption and Projected Demand
1	2	3	4	5	6	7 (2+5-6)	8	9
Cereals	223.47	5.39	0.20	-5.19	5.8	212.45	224.00	-11.55
Pulses	18.09	0.20	2.59	2.39	-	20.48	20.00	0.48
Foodgrains	241.56	5.59	2.79	-2.80	5.8	232.93	244.00	-11.07

* Fourth advance estimates of 2010-11

Sources: 1. Planning Commission for demand; 2. DGCIS, Kolkata for Export & Import
3. DES, M/o Agriculture for Production; 4. Food Bulletin, Food & Public Distribution, M/o Consumer

As seen from above Table, there is an over-estimation of 11 million tonnes in the demand projections as per the 4th advance estimate for 2010-11. For the terminal year (2011-12) of the 11th FYP, however, the over-estimation in demand may be a little different.

A comparison between projected supply and actual production of foodgrains for the Eleventh Plan is drawn on similar lines in Table given below.

Difference between Actual production and Projected Supply of Foodgrains in the Terminal Year (2011-12) of the 11th FYP

(million tonnes)

Commodity	2007-08	2008-09	2009-10	2010-11*	2011-12	Projected supply	Difference in Actual and Projected Supply
1	2	3	4	5	6	7	8(6-7)
Foodgrains	230.78	234.78	218.11	241.56		240	

* Fourth advance estimates of 2010-11

Source: 1. Planning Commission for projected supply

2. DES, M/o Agriculture for Production

It is interesting to note that, perhaps for the first time, as per the 4th advance estimate for 2010-11 (241.56 million tonnes of foodgrain production), the country has already achieved more than the projected supply of 240 million tonnes for 2011-12. This is very different from the earlier FYPs, when actual production has always been way below the projected supply.

Summary Findings of the last three FYPs

1.17 A summary of actual absorption and the projected demand, and actual production and projected supply, over the last three FYPs is in the table given below. It is interesting to observe that in 9th and 10th FYPs, the projected demand and supplies of foodgrains were both over-estimated by a wide margin, in the 11th FYP, the supply seems to have been marginally under-estimated (as in 2010-11 the actual production is more than the projected one for 2011-12), but demand is still over-estimated by a large magnitude. It may also be noted that if one has to judge the true degree of error in the forecasts of demand and supply, the absolute difference in actual absorption and projected demand, and actual production and projected supply in the terminal year, should be divided by the "net" quantity being forecast as demand or supply. This "net" quantity one can get by estimating the changes (additions) in projected quantities of demand and supply over the base year quantities of actual absorption or actual production. Measured this way, the degree of error is rather large. However, if one divides the differences in actual and

projected values of demand and supply in the terminal year by the absolute levels of absorption and production in the base period, the degree of error would be obviously much lower.

Difference between Actual Absorption (demand) and Projected demand in the Terminal Years of the last three FYPs

Five Year Plans		Comparison between projected and actual demand in Terminal years of the Plans					
	Commodities	Actual Absorption in the terminal year	Projected Demand	Difference in Actual absorption and projected Demand	Projected Supply	Actual production	Difference in Actual Production and Projected Supply
9th FYP (1997-98 to 2001-02)	Rice	91.95	90.75	1.2	95.5	93.34	-2.16
	Wheat	67.96	68.5	-0.54	75.5	72.77	-2.73
	Coarse Cereals	33.49	35.25	-1.76	34.5	33.38	-1.12
	Cereals	193.4	194.5	-1.1	205.5	199.48	-6.02
	Pulses	15.42	19.5	-4.08	17.5	13.37	-4.13
	Foodgrains	208.82	214.25	-5.43	223	212.85	-10.15
10th FYP (2002-03 to 2006-07)	Cereals	200.25	215.53	-15.28			
	Pulses	16.22	18.72	-2.5			
	Foodgrains	216.47	234.26	-17.79	230	217.28	-12.72
11th FYP (2007-08 to 2011-12)	Cereals	212.45	224	-11.55			
	Pulses	20.48	20	0.48			
	Foodgrains	232.93 *	244	-11.07	240	241.57 *	1.57

* For 2010-11

1.18 However, this whole exercise raises an issue that the terminal year of any FYP could see an unusual aberration in actual production or absorption from their trend behavior due to any major fluctuations caused by weather or some other extraneous factors in that terminal year. In order to contain these annual aberrations, it may be better to look at the 3 or 5 year moving

trends. We will take up this issue in forecasting the demand for the 12th Plan in the next section. But suffice it to say here, that in case one takes the 3 year moving average of actual absorption for the last three FYPs and compares this with the projected demands for the terminal years of each FYP, the difference in actual absorption and projected demand turns out to be even higher than reported in the above Table. These differences are given in the following Table.

Comparison between projected and 3 year moving average actual demand (absorption) in Terminal years of the Five Year Plans

		3 Y MA Absorption in terminal year	Projected Demand	Difference in Actual and Projected demand
9th Plan	Cereals	179.95	194.50	-14.55
	Pulses	13.21	19.50	-6.29
	Foodgrains	193.16	214.25	-21.09
10th Plan	Cereals	196.82	215.53	-18.71
	Pulses	16.09	18.72	-2.63
	Foodgrains	212.90	234.26	-21.36
11th Plan	Cereals	205.16	224.00	-18.84
	Pulses	20.06	20.00	0.06
	Foodgrains	225.10	244.00	-18.90

II Demand and Supply Projections for Agricultural Commodities during 12th Five Year Plan (2012-13 to 2016-17)

Demand Projections

2.1 In the 12th FYP, we undertake this exercise of demand projections for cereals, pulses, foodgrains, oilseeds and sugarcane for domestic uses by adopting four different approaches: (1) household consumption approach; (2) normative consumption approach; (3) behavioural approach; and finally (4) "absorption" approach. These approaches are briefly explained in the following paragraphs:

The Household Consumption Approach

2.2 Under this approach, annual per capita consumption of various commodities as reported in the National Sample Survey Office (NSSO) in their latest Round (i.e 66th round) of the Household Consumption Expenditure Survey, is multiplied by the mid-year projected population of each year of the 12th Plan. As per the NSSO Household Consumption Expenditure Survey

(2009-10) the consumption of food grains in 2009-10 is estimated at 146 kg per capita per annum in rural areas, 123.65 kg per capita per year in urban areas and 139.78 kg per capita per day at All India level. The detailed break-up is presented in the following Table.

Per capita annual consumption 2009-10 (Kgs/annum)

Item	Rural	Urban	India
Rice	74.70	56.64	69.67
Wheat	53.03	52.82	52.97
Coarse cereals	10.34	4.60	8.74
Cereals	138.08	114.05	131.39
Pulses	7.92	9.60	8.39
Foodgrains	146.00	123.65	139.78
Edible oils	7.74	9.95	8.35
Sugar	9.28	9.90	9.46

Source: NSSO 66th round 2009-10.

2.3 The Mid Year (1st October) projected population figures for different years, post census, are usually brought out by the Registrar General of India (RGI). However, post 2011 census no such projections have yet been issued by RGI. RGI had earlier projected the population of the country for each year up to 2026 based on the observed rate of growth in 2001 census with suitable adjustments for age specific growth. As per 2001 census India's population on 1st April 2011 was projected at 1192.5 million. However as per 2011 census the actual population on 1st April 2011 was 1210.193 million. Thus there was an under estimation of 1.48% between the projected population and actual population as on 1st April, 2011. Accordingly, the WG has inflated the projected population by 1.48% for each year of the 12th Plan. The Mid-Year projected population for 12th Plan works out as under:

Year	Population in Millions
2012-13	1235.388
2013-14	1250.995
2014-15	1266.429
2015-16	1281.678
2016-17	1296.728

Total domestic demand = (Annual per capita consumption X mid-year population) + SFW, Where SFW stands for seed, feed, wastage and industrial use.

2.3 It may be mentioned that this approach assumes short term static behaviour of consumption, i.e., increases in income levels have no effect on consumption in the short run. It may also be noted (see Figures 2.1 and 2.2) that over time, the per capita consumption of total cereals is coming down, and this is coming down faster in rural areas than in urban areas. However, in case of wheat, there is a marginal increase in rural areas and a decline in urban areas between 2004-05 and 2010-11 (Figure 2.2).The decline in the per capita direct consumption of cereals was brought about mainly by coarse cereals, to a lesser extent by rice and marginally by wheat (in urban areas only), as indicated in Figure 2.2. However, the total demand for cereals is likely to increase due to pressure of population increase.

2.4 It is also interesting to observe that the decline in consumption of cereals is taking place across all expenditure classes except the bottom 5 percent of population (Figure-2.3). This means as people get higher incomes they are likely to switch away from cereals, and go towards more of fruits and vegetables, milk and milk products, edible oils, and eggs, meat and fish etc. This may put a little pressure on the feed demand in due course. Here it may be important to note that most of Indians are not likely to eat much of beef and pork due to religious reasons (unlike the dietary patterns in most of the Western countries or in China), the pressure in India is going to be more on poultry. But poultry is relatively a very efficient convertor of energy (grain feed to meat ratio being 2:1 compared to almost 7:1 for beef and 5:1 for pork). Thus the feed demand for grains is likely to remain very limited compared to many other advanced countries. This religious way of life in Indian culture, in a way, acts as “safety valve” for food security of India.

Figure 2.1: Per capita consumption of Cereals, Pulses, and foodgrainsin Rural and Urban areas in 30 days (Kgs)

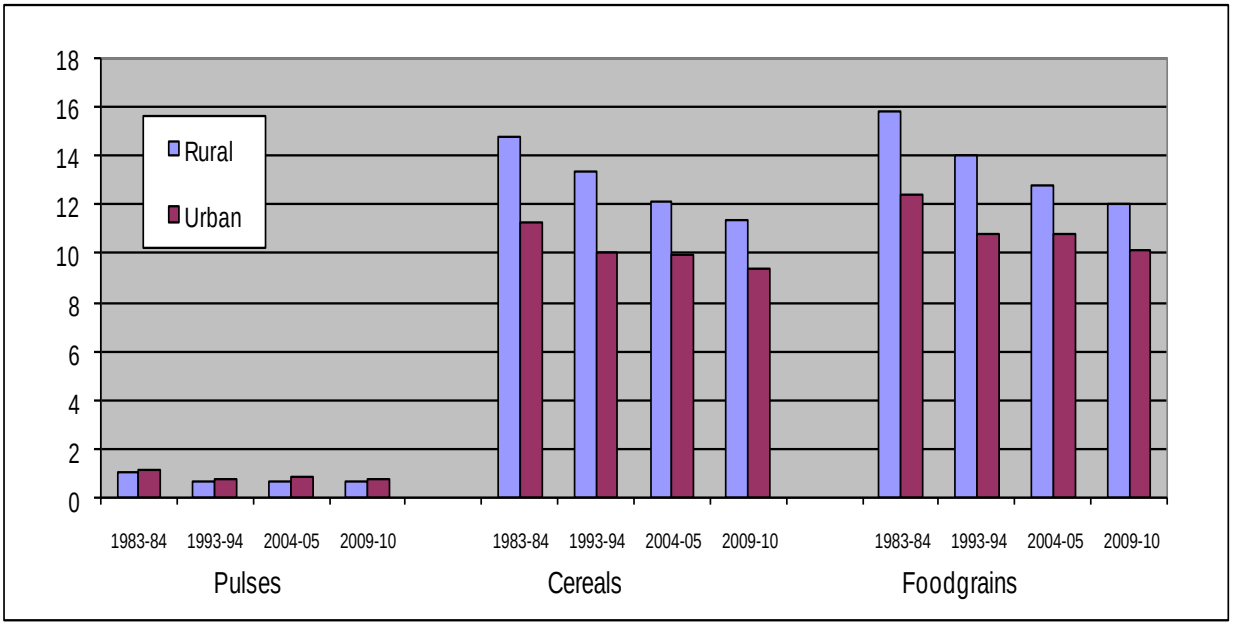


Figure 2.2: Per capita consumption of Rice and Wheat in Rural and Urban areas in 30 days (kgs)

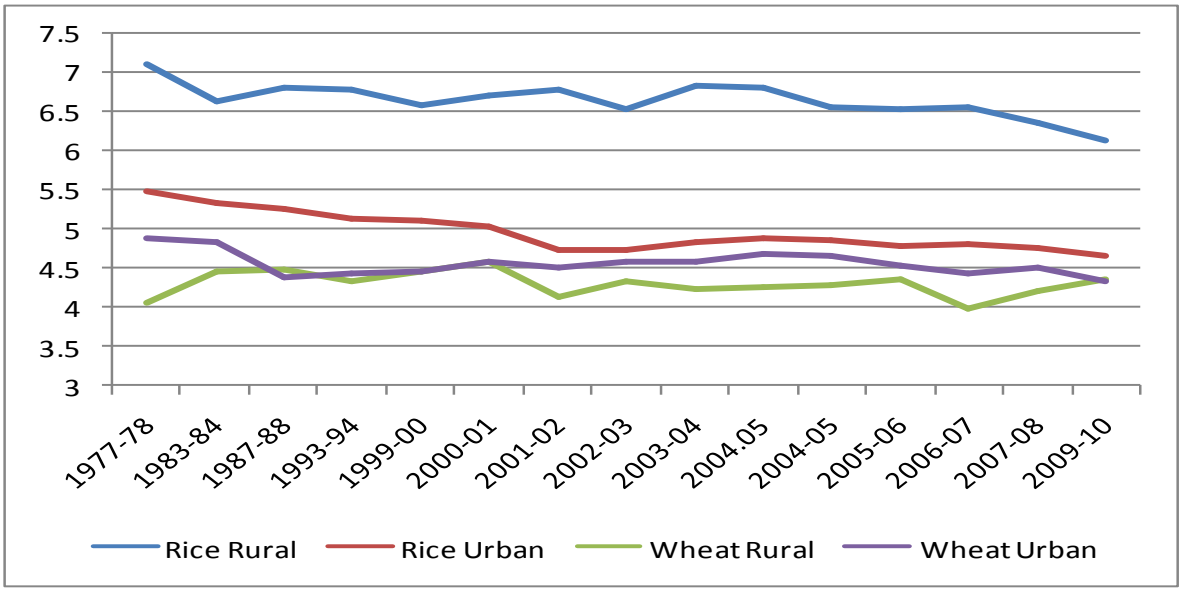
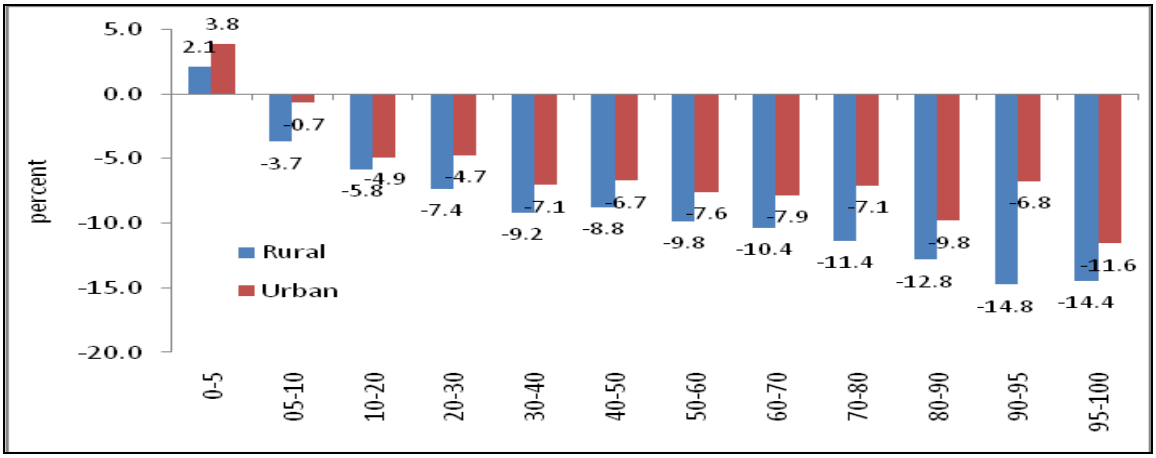


Figure 2.3: Percent change in monthly per capita cereal consumption in rural and urban India:

1993/94 and 2004-05



Source: NSSO Reports: Household Consumption Expenditure in India

Normative Approach:

2.5 The second approach to estimate the demand is the **Normative Approach** which is based on the requirement of food and nutrient contents of a balanced diet for a moderately active person or for sedentary life style. The National Institute of Nutrition, Hyderabad, has prescribed the normative requirements per capita per day for different life styles. As per NIN (ICMR 2010) the Recommended Dietary Allowance for Indians with moderate and sedentary life style are as given in following Table.

Recommended Dietary Allowance for Indians of Different Life Styles

(kgs/year/per capita)

Food items	Annual per capita Requirement for Moderate Life Style	Annual per capita Requirement for Sedentary life style
Cereals	146 kg	122 kg
Pulses	29.2 kg	25 kg
Edible oils	10.95 kg	9 kg
Sugar and jaggery	14.6 kg	15 kg

The energy consumption of a reference person per day is considered as 1 CU (Consumption Unit).

Multiplying the per capita recommended consumption by the mid year projected population of each of the year of the 12th Plan gives the total requirement for human consumption.

Total Domestic Demand = (Annual per capita recommended consumption X population) +SFW

This approach also assumes short term static behaviour in consumption, i.e., increases in income levels has no effect on consumption.

Behaviouristic Approach

2.6 The third approach which has been used for assessing demand projections is the **Behaviouristic Approach.** This is based on the growth of population and behaviour of consumption on account of changing per capita income in a growing economy and the elasticity of consumption/expenditure of various items. The consumption for the base year has been assessed on the basis of:

(a) the average actual consumption during triennium ending 2009-10 after adjusting for seed, feed and wastage, change in stocks, exports and imports and

(b) Consumption based on the NSS 66th Round (2009-10) Survey.

Further, the rate of growth in GDP, two scenarios - 9% and 8% have been taken which have been adjusted for the growth in population to arrive at growth in per capita income. Demand projections for cereals, pulses, foodgrains, edible oils and sugar have been done by using the following model:

$D_t = P_t * D_0 (1+\eta * y)^t$

Where, D_t = Demand in period t,

P_t = Mid-year (1st October) projected population in year t,

D_0 = Per capita demand in base year 2009-10,

η = expenditure elasticity of Demand,

Y = rate of growth in per capita income.

2.7 For assessment of demand for other commercial crops like cotton, jute & mesta, the above approaches are not applicable and accordingly compound annual growth rates in the last five years in domestic/industrial consumption have been used for assessing the demand. As regards the demand for exports, the Sub-Group decided to use average of last five years for this purpose so as to take care of year to year fluctuations.

Seed, Feed, Wastage & Industrial requirements

2.8 In each approach, the requirement towards seed, feed, wastage and industrial use is also added to arrive at the total requirement for the country as a whole. It may be mentioned here that the requirement towards seed, feed & wastage varies widely from crop to crop and State to State. As per the studies done by IARI (ICAR), New Delhi, this requirement (including for industrial use) varies from 4.4% for rice, 9.4% for wheat, 25.6% for coarse grains, 19.8% for pulses to 10.3% for foodgrains as a whole for the year 2000 (WG Report on Demand & Supply for 11th Plan). As per the studies conducted by Agro-Economic Research Centres, which are funded by the Ministry of Agriculture, this requirement for wheat varies from 6.93% in Punjab, 19.30% in Madhya Pradesh to 12.03% in Uttar Pradesh; for paddy it varies from 6.88% in Andhra Pradesh, 15.53% in Bihar to 12.31% in Assam. With the increase in production and productivity, the seed requirement as a percentage of total output has been declining over the years. However, with the higher growth rate in output of animal husbandry sector, the requirement towards feed has been increasing over time. Therefore, for the present report, requirement for seed, feed and wastage was retained as 12.5% of the gross output under the household consumption and nutritional requirement approaches, as was the case during the 10^{th}Plan and the 11^{th}Plan period for foodgrains except for rice for which this requirement has been taken as 7.6%. However, under the behavioural approach the quantities for seed, feed, wastage and industrial uses are estimated by NCAP by the following formula:

SFW = Net availability after adjusting for exports, imports and change in stocks – human consumption as reported in NSS Reports.

For oilseeds and sugarcane these norms were not found applicable and different approaches were followed. For the oilseeds, a norm of 28% of gross output was used for oil recovery rate from oilseeds, seed, feed & wastage, consumption in secondary/supplementary sectors taken together as was done by the Working Group for 10th Plan on suggestion of Ministry of

Consumer Affairs, Food and Public Distribution. As regards sugarcane, a norm of 11.67% was used for seed, feed & wastage (including chewing) based on information provided by Directorate of Sugar. The rate of recovery of sugar from sugarcane has been assumed to be 10.2%. These rates were also adopted by the Working Groups constituted for 10th and 11th Five Year Plans.

Absorption Approach:

2.9 The fourth method for estimating demand is called the Absorption Approach. It is seen that the seed, feed, wastage and industrial use are not estimated scientifically for quite some time. While estimating the total demand for various agricultural commodities in the previous Plans, proportion of seed, feed and wastage have been based on historical convention rather than based on any systematic and scientific study. In order to avoid any over or under estimation of seed, feed, wastage and industrial use, it was felt that the quantity and rate of growth in actual absorption in the economy or disappearance of various commodities from the system be computed to estimate the total demand which would include human consumption, animal feed, seed, industrial use, wastage, and any changes in private level stocks with traders, farmers, and households. Actual demand absorption or disappearance of quantity of a commodity in a particular year is estimated by addition of Production and net Imports minus changes in government stocks. Any addition to government stocks over the year reduces the supply for consumption (absorption in the system) and vice versa. In the absence of any information about the stocks held with traders and consumers only changes in Government stocks were taken. Thus the actual absorption in the economy would also include the changes in private sector stocks with traders and farmers, and this component may fluctuate quite a bit from year to year. In fact this acts like a sponge in the system and absorbs grains (like water) when the supplies are good and when government rules allow the private sector to hold unlimited stocks. In years of scarcity, when government puts stock limits, this contracts and releases grains in the system for consumption.

Demand Projections based on Household Consumption

2.10 The demand projections based on these assumptions and including seed, feed and wastage requirement have been worked out for all the five years of the 12th Plan period and are given in the following Table.

Demand Projections based on Households Consumption Approach

(in million tonnes)

Year	Rice	Wheat	Coarse cereals	Cereals	Pulses	Food-grains	Oilseeds	Sugarcane
2012	93.15	74.45	27.80	195.40	12.72	208.13	28.47	130.17
2013	94.33	75.39	28.15	197.87	12.89	210.76	28.83	131.81
2014	95.49	76.32	28.50	200.31	13.04	213.36	29.19	133.44
2015	96.64	77.24	28.84	202.72	13.20	215.93	29.54	135.04
2016	97.78	78.15	29.18	205.11	13.36	218.46	29.88	136.63
SFW %	7.60	12.10	26.50		12.50	12.50		11.67
Rec. %							28.00	10.20

Demand Projections based on Normative Approach

2.11 The demand projections based on the normative approach with sedentary life as per RDA 2010 are given in the following Table. The sedentary life style was suggested as the most appropriate one for India by NIN, given the age structure of population and changing life styles in rural and urban India. As per this approach, the total consumption of foodgrains in the terminal year of 12th FYP will be only 217.84 million tonnes.

Demand Projections (Normative approach) with Sedentary Life Styles

(in million tonnes)

Year	Cereals	Pulses	Foodgrains	Oilseeds	Sugar	Sugarcane
2012	172.24	35.30	207.54	39.71	18.53	205.67
2013	174.42	35.74	210.16	40.21	18.76	208.27
2014	176.57	36.18	212.75	40.71	19.00	210.84
2015	178.70	36.62	215.31	41.20	19.22	213.38
2016	180.79	37.05	217.84	41.68	19.45	215.88

However, the WG also deemed it important to work out the demand projections based on the normative approach with moderate life as per RDA 2010. The results are presented in Table given below. Obviously, under this approach, the total normative demand for foodgrains is much higher at 244.8 million tonnes.

Demand Projections (Normative Approach) with Moderate Life Style

(in million tonnes)

Year	Cereals	Pulses	Foodgraind	Oilseed	Sugar	Sugarcane
2012	194.37	38.87	233.24	45.55	17.01	188.77
2013	196.82	39.36	236.19	46.13	17.22	191.15
2014	199.25	39.85	239.10	46.70	17.43	193.51
2015	201.65	40.33	241.98	47.26	17.64	195.84
2016	204.02	40.80	244.82	47.82	17.85	198.14

Demand projections based on Behaviouristic Approach

2.12 Under this approach, the demand projections have been worked out based on the following assumptions. Two scenarios have been assumed for the growth of GDP during the 12th Plan. The GDP is estimated to grow at the rate of 9% and 8% per annum. The population is estimated to grow at the rate of 1.3%. After adjusting for the rate of growth of population, per capita income is estimated to grow at the average rate of 7.7% and 6.7% per annum respectively under the two growth scenarios.

2.13 Based on the Food Characteristic Demand Systems, the elasticity of expenditure estimated at 0.0245 for rice, 0.0746 for wheat, -0.1249 for coarse cereals, and 0.2187 for pulses, 0.2972 for oilseeds and 0.0619 for sugar by Prof. Praduman Kumar, Senior consultant, NCAP have been adopted. The base year consumption of different commodities has been worked out on the basis of (i) per capita availability derived from net production, net imports and change in stocks for triennium ending 2010-11 to remove the annual fluctuations and (ii) as per the consumption reported in NSS 66th round (2009-10) households consumption expenditure survey. Further, the quantities required towards, seed, feed & wastage three scenarios were taken, as per DES norms, as estimated by NCAP and a third alternative which is in between the DES and NCAP. These are given below:

	DES	NCAP	Alternative
Rice	7.6	13.77	13.77
Wheat	12.1	18.13	18.13
Coarse Cereals	26.5	59.53	26.5
Pulses	12.5	42.75	20
Oil Seeds	Rec.: 28	41.23	20
Sugarcane	SFW: 11.67 Rec.: 10.2	51.33	20

The domestic demand requirements have been worked out for all the years of the 12thPlan period as given in Tables 2.1 to 2.4. Under various assumptions of SFW, if we restrict to DES norms, the demand projections for foodgrains remain around 241 million tonnes, when one takes the base year consumption to be three year per capita availability (which is akin to absorption).

But if the base year consumption is taken to be NSSO data, the demand projections slump to 209 million tonnes for foodgrains. And further, if the SFW data is taken from NCAP estimates, which is closer to the absorption approach, the demand estimate is 242 million tonnes. This is the highest estimate.

Table 2.1: Demand Projections based on Behaviouristic Approach 1

(Base consumption = Per capita availability with 9% GDP growth and SFW as per DES norms).

Item	SFW % of gross Production	2012	2013	2014	2015	2016
Rice	7.6	91.47	92.79	94.12	95.43	96.73
Wheat	12.1	80.46	81.95	83.43	84.92	86.41
Coarse cereals	26.5	34.12	34.22	34.31	34.39	34.45
Cereals		206.04	208.96	211.86	214.74	217.60
Pulses	12.5	20.98	21.60	22.24	22.88	23.54
Foodgrains		227.02	230.56	234.09	237.62	241.14
Edible seed	Recovery 28 %	60.86	63.03	65.27	67.57	69.93
Sugarcane	11.67	248.75	253.09	257.43	261.78	266.11

Table 2.2: Demand Projections based on Behavioristic Approach 1

(Base consumption = Per capita availability with 8 % GDP growth)

Item	SFW	2012	2013	2014	2015	2016
Rice	7.6	91.38	92.68	93.98	95.27	96.54
Wheat	12.1	80.22	81.64	83.06	84.48	85.90
Coarse cereals	26.5	34.29	34.43	34.57	34.69	34.80
Cereals		205.89	208.76	211.61	214.44	217.25
Pulses	12.5	20.80	21.37	21.95	22.54	23.14
Foodgrains		226.69	230.13	233.56	236.98	240.39
Edible oils	Rec. 28	60.15	62.12	64.14	66.21	68.32
Sugarcane	11.67	248.14	252.31	256.48	260.65	264.80

Table 2.3: Demand Projections based on Behavioristic Approach 2

(Base consumption=NSS 2009 quantities, with 9% GDP growth and SFW=DES norms)

Total Demand	SFW	2012	2013	2014	2015	2016
Rice	7.6		95.22	96.58	97.92	99.26
Wheat	12.1		77.93	79.35	80.77	82.18
Coarse cereals	26.5	14.14	14.18	14.22	14.25	14.28
Total cereals		184.52	187.33	190.14	192.94	195.72
Pulses	12.5		13.03	13.42	13.81	14.21
Total Foodgrains		197.18	200.37	203.56	206.75	209.93
Oilseed	Rec; 28		41.79	43.28	44.80	46.36
Sugarcane	11.67	132.16	134.47	136.77	139.08	141.38

Table 2.4: Demand Projections based on Behaviouristic Approach 3

(Base consumption = NSS 2009 with 9% GDP growth and SFW = NCAP estimates)

Total Demand	SFW	2012	2013	2014	2015	2016
Rice	13.77	100.57	102.03	103.49	104.93	106.36
Wheat	18.13	81.79	83.29	84.81	86.32	87.84
Coarse cereals	59.53	25.68	25.75	25.82	25.88	25.93
Total cereals	22.49	208.03	211.08	214.11	217.13	220.13
Pulses	42.75	19.35	19.92	20.51	21.10	21.71
Total Foodgrains	24.19	227.38	231.00	234.62	238.23	241.84
Oilseed	41.23	68.66	71.12	73.64	76.23	78.89
Sugarcane	51.33	239.85	244.04	248.23	252.41	256.59

Table 2.5: Demand Projections based on Behavioristic Approach 4

(Base consumption = NSS 2009 quantities, with 9% GDP growth and SFW = Assumed Estimates)

Total Demand	SFW	2012	2013	2014	2015	2016
Rice	13.77	100.57	102.03	103.49	104.93	106.36
Wheat	18.13	81.79	83.29	84.81	86.32	87.84
Coarse cereals	26.50	14.14	14.18	14.22	14.25	14.28
Total cereals		196.49	199.51	202.51	205.50	208.48
Pulses	20.00	13.85	14.26	14.68	15.10	15.54
Total Foodgrains		210.34	213.76	217.18	220.60	224.01
Oilseed	20.00	50.44	52.24	54.10	56.00	57.96
Sugarcane	20.00	145.92	148.47	151.01	153.56	156.10

Demand Projections based on Absorption Approach:

2.14 The availability of different commodities for human consumption, animal feed, seed, industrial uses and wastage is periodically estimated by the Directorate of Economics and Statistics. While doing so certain percentage of the total domestic production is taken as seed, feed and wastage. For quite some years, these percentages have been 7.6 percent for rice, 12.1 percent for wheat, 26.5 per cent for coarse cereals, 22.1 per cent for gram, 12.5 per cent for pulses and 12.5 per cent for foodgrains as a whole. The actual seed, feed and wastage varies substantially across crops and over states. There are no empirical studies on these in the recent years. Hence, while making the demand projections for the Twelfth Plan under the absorption approach, no assumptions have been made for seed, feed, industrial use and wastage. These are included in the total absorption which includes human consumption, animal feed, seed, industrial use, wastage as well as changes in private sector stocks. Normally absorption should be driven by the population and should have a somewhat smooth behaviour. But in reality, it is not the case as policy changes, especially related to private sector stocks; also impinge on the level of absorption. Hence, under this approach a comprehensive study of the annual absorption since 1991-92 to 2010-11 and the rate of growth in absorption during this period were undertaken. The annual absorption of foodgrains has ranged from 170 million tonnes to 233 million tonnes during this period. However, there were frequent and significant variations in annul absorption during the intervening years as can be seen from the following table:

Table 2.6: Annual Absorption of Foodgrains, 1991-92 to 2010-11

(in million tones)

Year	Rice	Wheat	Coarse Cereals	Cereals	Pulses	Foodgrains
1991-92	75.6	59.4	26.0	161.0	12.3	173.4
1992-93	70.5	50.1	36.6	157.2	13.2	170.4
1993-94	75.3	57.5	30.7	163.4	13.9	177.3
1994-95	77.7	63.9	29.8	171.5	14.5	186.0
1995-96	75.6	66.6	29.0	171.2	12.7	183.9
1996-97	81.2	71.5	34.0	186.7	14.8	201.6
1997-98	79.1	62.8	30.4	172.2	13.8	186.0
1998-99	82.6	67.1	31.3	181.0	15.4	196.4

1999-00	83.9	72.4	30.5	186.9	13.5	200.3
2000-01	75.2	57.7	30.8	163.7	11.2	174.9
2001-02	91.9	68.0	33.5	193.4	15.4	208.8
2002-03	77.8	79.0	26.0	182.8	13.0	195.7
2003-04	85.3	73.1	36.4	194.8	16.5	211.3
2004-05	79.0	71.3	32.3	182.7	14.2	196.9
2005-06	86.6	74.9	33.0	194.4	14.6	209.1
2006-07	88.8	77.1	34.4	200.3	16.2	216.5
2007-08	90.0	68.4	37.4	195.8	17.4	213.2
2008-09	88.3	72.7	35.5	196.5	16.9	213.4
2009-10	82.3	80.3	31.1	193.7	18.1	211.7
2010-11	90.5	82.5	39.4	212.4	20.5	232.9

2.15 Under normal circumstances, when population is increasing, annual absorption of foodgrains should not decline. But as is seen in Table 2.7, annual absorption fluctuates quite a bit. The declines are attributable to changes in stocks with the government and private traders and farmers. While we have information about government stocks, there is no information about stocks with traders, farmers and consumers. In order to smoothen the variations in annual absorption, three years and five years moving averages of annual absorption are taken and the corresponding annual growth rates are estimated. In the first scenario, base year absorption is three year average of 2008-11 which is projected with the five year compound average growth rates in absorption of various commodities. The growth rates observed were 0.81 per cent for rice, 1.48 per cent for wheat, 0.89 percent for coarse grains, 4.17 per cent for pulses and 1.3 percent for foodgrains. The results are presented in Table 2.8. It is worth noting that the demand projection for the terminal year of 12th FYP comes to 240 million tonnes as per this approach.

Table 2.7: Demand Projections based on Absorption Approach (based on 5year CAGR on 3 year Moving Average (MA)Absorption)

(in million tonnes)

	Rice	Wheat	Coarse Cereals	Cereals	Pulses	Foodgrains
2011-12	88.45	80.84	35.97	205.16	20.06	225.10
2012-13	89.17	82.03	36.29	207.33	20.90	228.02
2013-14	89.90	83.25	36.61	209.53	21.77	230.98
2014-15	90.63	84.47	36.93	211.75	22.68	233.98
2015-16	91.37	85.72	37.26	213.99	23.62	237.02
2016-17	92.11	86.99	37.59	216.26	24.61	240.10

2.16 Under an alternative scenario, projections were made based on five year moving average with 5 year point to point CAGR. The point to point Plan wise rates of growth in absorption are computed for the 5 year moving average and it is observed that the compound annual growth rate in absorption was 0.73 per cent during the Ninth Plan, 1.25 per cent during the 10th Plan and 1.36 per cent during the 11thplan (from 2005-06 to 2010-11). On the basis of the absorption in the terminal year of the 11th Plan of say around 230 million tonnes and with the rate of growth of 1.4% which would take care of the rate of growth in population and the small elasticity of demand for cereals the requirement for the 12th Plan, the estimate for the terminal year works out to be about 246.56 million tonnes.

2.17 But if one takes the base year absorption at the terminal years of the 11th FYP to be a 3 year moving average of actual absorption, it turns out to be just 220.38 million tonnes (and not 230 mt) centered at 2009-10. If one applies 1.4 percent CAGR to this base absorption to get a projected absorption for the year 2016-17, it turns out to be 242.91 million tonnes for 2016-17. Further, if one takes the base year based on 5 year moving average of actual absorption (218.62 mt centered at 2008-09) and then projects for 2016-17 on the basis of 1.4 percent CAGR, the projected demand for foodgrains turns out to be 244.34 million tonnes (Table 2.14). The upshot of these alternative scenarios is that whichever way one looks at, the projected absorption of foodgrains in 2016-17 is likely to be between 242 to 246 million tonnes. The CAGR of 1.4 percent already has some buffer as the actual CAGR based on last 5 years has been between 1.36

to 1.38 percent, depending upon whether one takes a five year moving average of absorption or 3 year moving average.

Table 2.8: Projected Demand for Foodgrains at 1.4 percent CAGR with varying base year Absorption of Foodgrains.

		Assumed base absorption of 230mt	3 yr MA base absorption of 220.38 mt	5 yr MA base absorption of 218.62 mt
Base year Absorption	2008-09			218.62
	2009-10		220.38	221.68
	2010-11		223.47	224.78
	2011-12	230	226.59	227.93
12th Plan	2012-13	233.22	229.77	231.12
	2013-14	236.49	232.98	234.36
	2014-15	239.80	236.24	237.64
	2015-16	243.15	239.55	240.97
	2016-17	246.56	242.91	244.34

Summing up Projected Demand for foodgrains for the terminal year of 12th Five Year Plan by various Methods

2.18 The comparative position of demand projections based on the four approaches mentioned above for the year 2016-17, the terminal year of the 12th Five Year Plan, for different crops, is given in Table 2.9.

Table 2.9: Projected Demand for foodgrains for the terminal year of the 12th FYP (2016-17) under Four Different Methods

(In million tonnes)

	Rice	Wheat	Coarse cereals	Cereals	Pulses	Foodgrains	Oilseeds	Sugarcane
Household consumption	98	78	29	205	13	218	30	137
Normative Approach								
Sedentary				181	37	218	42	216
Moderate				204	41	245	48	198
Behaviouristic Approach (1)	(Base line consumption = Per capita availability TE 2010-11)							
GDP 9%	97	86	34	218	24	241	70	266
GDP 8%	97	86	35	217	23	240	68	265
Behaviouristic Approach (2)	(Base line consumption = Per capita consumption NSS 2009-10 and SFW as estimated by NCAP)							
GDP 9%	106	88	26	220	22	242	79	257
Absorption Approach	92	87	38	216	25	240		
Range	92-106	78-88	26-38	181-220	13-41	218-245	30-79	137-266

2.19 The demand projections given by the above mentioned four approaches differ significantly. The foodgrains requirement under the four approaches, namely, household approach, normative approach, behavioural approach and the absorption approach work out to 218 million tonnes, 245 million tonnes, 242 million tonnes and 240 million tonnes respectively. The Working Group is of the view that the domestic demand for foodgrains during the terminal year of the 12th Five Year Plan could not be more than 245 - 250 million tonnes maximum. Any amount of foodgrains produced beyond 250 million tonnes will be either exported or add to stocks.

Supply Projections

2.20 The Working Group constituted for the 12th Five Year Plan followed the following five methods for making supply projections of foodgrains (cereals and pulses), oilseeds and, sugarcane,. The same methods were followed by the Working Groups in the past.

Simple regression method

The supply projections through this method have been worked out by fitting a simple linear regression equation as under:

Y=a+b X

Table 2.10: Supply projections based on simple regression method

(Million tonnes)

Year	2012-13	2013-14	2014-15	2015-16	2016-17
Rice	98.84	100.19	101.54	102.89	104.24
Wheat	86.21	87.96	89.70	91.44	93.19
Coarse cereals	41.12	42.02	42.92	43.81	44.71
Cereals	226.18	230.17	234.16	238.15	242.13
Pulses	16.80	17.20	17.60	18.00	18.40
Foodgrains	242.98	247.37	251.76	256.14	260.53
Oilseeds	32.87	33.97	35.07	36.18	37.28
Sugarcane	338.69	345.28	351.88	358.47	365.06

Exponential Growth Method

Table 2.11: Supply projections based on exponential growth method

(Million tonnes)

Year	2012	2013	2014	2015	2016
Rice	99.47	101.06	102.67	104.31	105.98
Wheat	86.76	88.79	90.87	93.00	95.17
Coarse cereals	41.57	42.68	43.81	44.98	46.18
Cereals	227.80	232.53	237.36	242.29	247.33
Pulses	16.97	17.45	17.95	18.47	19.00
Foodgrains	244.77	249.98	255.31	260.76	266.33
Oilseeds	33.62	35.29	37.04	38.88	40.81
Sugarcane	339.34	347.08	354.99	363.09	371.37

* $y=ab^t$,

Log (Y)=a + t Log (b)

Where a,b are constants and t is time in years.

Multiple Regression Method

Table 2.12: Supply projections based on multiple regression method

(Million tonnes)

Year	2012	2013	2014	2015	2016
Rice	97.96	99.17	100.38	101.60	102.81
Wheat	86.11	87.84	89.57	91.30	93.02
Coarse cereals	40.58	41.39	42.20	43.01	43.82
Cereals	224.65	228.40	232.15	235.91	239.66
Pulses	17.22	17.67	18.12	18.58	19.03
Foodgrains	241.87	246.07	250.28	254.48	258.69
Oilseeds	31.70	32.74	33.77	34.80	35.83
Sugarcane	341.40	348.41	355.42	362.43	369.44

The functional form of the equation used is as under:

$y=a+bx_1 +cx_2 +dx_3$, where x1, x2 and x3 are the explanatory variables namely quantity of fertilizers consumption per hectare, proportion of irrigated area under the crop and area under production for each crop concerned and a,b,c and d are coefficients of the explanatory variables to be estimated by the equation.

Table 2.13: Supply projections based on average annual growth rate method

(Million tonnes)

Item	2012	2013	2014	2015	2016
Rice	95.38	96.01	96.64	97.28	97.93
Wheat	88.63	92.18	95.89	99.74	103.74
Coarse cereals	41.28	43.06	44.92	46.86	48.88
Cereals	225.28	231.26	237.45	243.88	250.55
Pulses	17.33	18.28	19.28	20.33	21.45
Foodgrains	242.61	249.53	256.73	264.21	272.00
Oilseeds	29.17	29.97	30.80	31.65	32.52
Sugarcane	337.70	354.79	372.74	391.59	411.40

Table 2.14: Supply projections based on moving compound annual growth rate method

(Million tonnes)

Item	2012	2013	2014	2015	2016
Rice	96.83	98.21	99.61	101.03	102.47
Wheat	87.22	90.01	92.88	95.84	98.89
Coarse cereals	39.21	39.87	40.54	41.21	41.90
Cereals	223.26	228.08	233.02	238.08	243.26
Pulses	16.35	16.75	17.16	17.58	18.02
Foodgrains	239.61	244.83	250.18	255.66	261.28
Oilseeds	28.39	28.78	29.17	29.58	29.99
Sugarcane	333.55	348.27	363.64	379.68	396.44

Supply for terminal year of the12th Five Year Plan

2.21 The comparative position of supply for the year2016-17 which is terminal year of the 12th Five Year Plan for different crops, based on the methods mentioned above, emerges as given in Table 2.22.

Table 2.15: Supply for the terminal year of the 12th Five Year Plan

(Million tones)

Methods	Rice	Wheat	Coarse cereals	Cereals	Pulses	Food-grains	Oilseeds	Sugarcane
Simple regression	104.2	93.2	44.7	242.1	18.4	260.5	37.3	365.1
Exponential growth	106.0	95.2	46.2	247.3	19.0	266.3	40.8	371.4
Multiple regression	102.8	93.0	43.8	239.7	19.0	258.7	35.8	369.4
Average annual growth	97.9	103.7	48.9	250.6	21.4	272.0	32.5	411.4
Compound annual growth	102.5	98.9	41.9	243.3	18.0	261.3	30.0	396.4
Range	98-106	93-103	42-48	240-251	18-21	258-272	33-41	365-411

WG Recommendations on the Supply Side

2.22 The WG feels that under the business as usual scenario, the foodgrain production by the end of the 12th FYP (2016-17) is likely to be around 260 million tonnes. This will be way above the likely absorption, which is likely to be between 245-250 million tonnes. This would give a comfortable margin of either exporting or accumulating stocks to the tune of about 10 million tonnes of grains every year by 2016-17.

2.23 On the other hand, business as usual will lead to massive imports of edible oils (oilseeds). The domestic production will fall far short of the demand, and therefore there is urgent need to think about the ways and means to augment edible oil supplies in a manner that is consistent with global efficiency norms, and without giving unduly high protection to this sector. In order to achieve this, a major program related to palm oil is needed, as palm oil is a crop that can give almost 4 tonnes of oil per hectare. There is need to study this in a systematic manner and then take it up on war footing. Besides this, traditional oilseeds will also have to be encouraged by augmenting their productivity and making them remunerative for farmers. This is the crux of all this exercise of demand and supplies for the 12th FYP.

2.24 Absorption represents demand when there is no supply constraint in 2010-11. Thus, the absorption during 2010-11 can be taken as demand for future growth in domestic demand. By taking into account, the future growth in domestic demand such as growth in direct consumption, growth in seed, wastage, feed, industrial uses and other demands comes about 260.00 million, which is based on an absorption of 235.26 million tones in base year (2010-11) including export plus import (2.88-2.02+0.86). The commodity-wise demand projections for 12th Plan is as under:

(Million Tonnes)

Commodity	2004-05	2011-12	2016-17	Growth Rate (%)
Rice	93.96	103.48	111.50	1.10
Wheat	70.04	80.79	90.50	1.90
Coarse Cereals	31.49	34.60	36.00	0.27
Total Cereals	195.49	218.87	238.00	1.29
Pulses	14.91	18.84	22.00	3.09
Foodgrains	**210.40**	**237.71**	**260.00**	**1.45**

The above stated demand projection of 260 million tones also includes the requirement of commitment under National Food Security Bill.

CHAPTER-III

3. Report of Sub Group-II: To examine the procurement policies with regard to foodgrains

EXECUTIVE SUMMARY

The report submitted by CMD, FCI and Chairman Sub-Group-II has discussed procurement of wheat and paddy in all the major foodgrains producing states, made suggestions for procurement, quality control, manpower and settlement of procurement incidentals. The highlights of the reports are summarized as under:-

- The share of FCI in procurement of wheat is limited the States of Punjab (15%), Haryana (12%). Similarly, in case of paddy share of FCI is only 4% in Punjab and less than 2% in Haryana. Procurement of Paddy in both the States is largely made through Custom Milled route.

- Both the States have imposed higher taxes and levies i.e. 14.5% in Punjab and 10.5% in Haryana.

- Madhya Pradesh, Chhattisgarh, Tamil Nadu, Kerala, Gujarat, Karnataka and Uttrakhand are DCP States, wherein responsibility of procurement is rested with the State Governments.

- Rajasthan, a major pearl millet growing State and every year makes request for procurement of bajra by FCI. The FCI and the Government of India are advising the State Government to gear up its own machinery for procurement on MSP but the Government of Rajasthan has not taken any significant initiative to gear up machinery. Similarly, the state has almost totally absolved itself of taking any responsibility for storage of wheat. **Therefore, efforts are required to strengthen the state machinery for procurement operations for wheat and coarse cereals.**

- Open Kutcha ground storage facility used in Chhattisgarh for paddy procurement has been raised an issue of damage of paddy bags during rains.

- Uttar Pradesh was DCP state till Rabi Marketing Season 2010-11. Now, after opting out DCP mode procurement, the rice and wheat procurement gone down substantially in the State. FCI have to play a major role in procurement operations.

- Bihar and Jharkhand are non DCP states without any organized Mandi system. Both the States have scope for augmenting procurement but need support for storage.

3.2 Suggestions relating to procurement:

- All the States may be directed to become DCP States.

- The States may consider a suitable cadre for quality control and accounts to ensure proper record of procurement operations.

- About 90% of wheat arrival takes place within a short period of less than a month in Haryana and Punjab causing strain on existing resources. Therefore, suggested that Punjab should create suitable plinths for short time storage of wheat. So that mandies can be cleared on the same day.

- Paddy arrivals at the beginning of marketing season are rejected because of high moisture level creating law and order problems – **No suggestions have been made to overcome the problem.**

- Allotment of Mandies by the States to FCI on long term basis to facilitate infrastructure and effective procurement operations.

- Involvement of FCI in procurement of paddy in DCP States also. As the paddy procured by States is transferred to FCI from State like Chhattisgarh and FCI faces problem in getting the paddy milled.

- The States like Bihar, Orissa and Uttar Pradesh, where farmers do not have facility to transport to their produce to the purchase centres may be advised to open more purchase centres.

- Strengthening of computerizing and daily data base for arrival and procurement – Particularly in the States of Bihar, Jharkhand, Kerala, Maharashtra, Orissa, Uttar Pradesh, Tamilnadu and West Bengal.

- Payment of low milling charges by States like Chhattisgarh (Rs. 45/- per quintal) and Maharashtra and also by Government of India (Rs. 15/- per quintal) – **It is our own observations that paddy is milled without any charge in the villages as they get rice brawn and broken rice (Kanki).**

3.3 Suggestions relating to storage:

- Change of policy for assessment of storage capacity in procuring states.
- The storage capacity created under PEG may not be fully utilized in future.

3.4 Suggestions relating to quality control: Relaxation in specifications of paddy, rice and wheat may be decided after collection of samples and their analysis by S&R Division the Department of Food. The decisions should come expeditiously to facilitate procurement operations.

3.5 Suggestions relating to manpower: As against the manpower in position on 31.12.2010 were 31,247 as against 44,155 in 2005. If the State Governments become DCP States, additional requirement of Staff for FCI may be kept within the reasonable limits. Besides, FCI has also raised issues relating to increase cost of manpower and demand of unions.

3.6 Settlement of procurement incidentals:

- Enhancement of provisional incidental charges paid to the States and strengthening of procurement incidental cell dealing with processing of these claims relating to incidentals.
- Setting up of a Committee consisting of Chief Adviser (Cost), GOI, an Ex-Chairman of CACP, an Ex-Union Food Secretary to study the details of fixation of incidental.
- Exemption of MSP operations/TPDS from taxation.

3.7 Issues relating of release of food subsidy in FCI: The total food subsidy in the GOI budget of 2011-12 for FCI is Rs. 47,239 crores against which the estimated food subsidy of FCI alone is about Rs. 77,491 crores. Moreover, arrears of Rs. 11,743 crores are payable to FCI on 01.04.2011. In addition, there is subsidy requirement for DCP states which are released directly by the GOI to the respective DCP States. After implementation of the Food Security Act, the actual food subsidy may reach about Rs. 1 Lakh crores.

Report of Sub Group–II

To examine the procurement policies with regard to food grains

1. Procurement of wheat, paddy and coarse grains, under MSP operations, has been traditionally done in Punjab, Haryana, parts of U.P., M.P. & Rajasthan. Paddy, procurement has been generally done through levy route in Andhra Pradesh and UP. In Punjab and Haryana, procurement of paddy by the State agencies has been the preferred route. The procurement of coarse grains is mainly carried out by State Agencies and is negligible compared to the procurement of wheat and rice in the country.

Procurement scenario of the major procuring States has been elaborated below, so that policy making can be done in a more realistic manner.

2 Procurement of Wheat in Punjab:

2.1 The share of FCI in procurement of wheat for the last three years has been around 15%. A Statement showing the share of FCI in procurement of wheat and paddy (CMR only) is enclosed at **Annexure-I & II**

2.2 The major responsibility for procurement of wheat in Punjab is taken by the State agencies. Major State agencies undertaking procurement in Punjab are PUNGRAIN, MARKFED, PUNSUP, and PSWC & PAFC.

2.3 The State Government provides guarantee to the State agencies for raising CC limit from the bank. It is understood that the total CC limit available to State agencies exceeds Rs.35000 crore. Incidentally, the total CC limit of FCI is only Rs. 34495 Crores as Government of India has not agreed to the proposal of FCI to increase its guarantee for availing CC limit beyond Rs.34950 crore.

2.4 Despite the fact that majority of procurement is being carried out by the State Agencies, only PSWC & MARKFED have a dedicated Quality Control cadre. Other agencies in Punjab manage wheat procurement operations without any specialized QC cadre and procurement is undertaken through non technical staff. Moreover, the same staff is also the custodian of the stocks maintained by State Agencies. The damage to wheat stocks held in CAP storage in Punjab can also be attributed to non availability of technically qualified manpower and poor preventive maintenance by staff of some State Agencies.

2.5 The total storage capacity with State agencies in Punjab is 115.45 lakh tonnes (24.17 lakh tonnes covered plus 91.28 lakh tonnes CAP as on 31.3.2010) while stock of wheat as on

1.6.2010 was 118 lakh tonnes. As on 1.6.2011, the stock of wheat in Punjab is likely to be 145 lakh tonnes out of which 118 lakh tonnes of wheat is likely to be stored by the State agencies in CAP.

2.6 It is worthwhile to mention here that Punjab Government mobilizes its entire administrative machinery for wheat procurement operations and the position is monitored on day to day basis by the office of the Chief Minister. In fact, the Principal Secretary to CM is deputed to visit mandis in Punjab and close coordination is maintained with FCI officials, State Government and State Agencies. In order to avoid choking of mandis, FCI is compelled to violate the principle of first-in-first out (FIFO) and moves some wheat stocks on priority directly from mandis so that mandis are not choked and law and order problem is not created. In 2010-11, 7.55 lakh tonnes of wheat was directly moved from mandis in violation of FIFO. Similarly, in 2011-12, 7.30 lakh tonnes wheat procured in 2011-12 has been moved out by FCI in violation of FIFO.

2.7 Presently, many mandis in Punjab get choked due to heavy arrivals and delay in transportation of wheat from mandis to storage points. There is a strong system of transportation unions in Punjab and they don't allow non-member transporters to undertake transportation of wheat from mandis to storage points. It is only with the intervention of Deputy Commissioners that transportation of wheat from mandis to storage points is undertaken. The influence of transportation unions is to be checked by the State Government so that the wheat procured in the mandis can be transported to storage points without delay.

2.8 Government of Punjab has imposed 14.5% taxes and levies. Details of State-wise taxes and levies are at **Annexure-III**. Thus, if wheat is purchased in Punjab at the MSP of Rs.1120 in RMS 2011-12, the total impact of taxes would be approx. Rs. 1470 crores. This has totally discouraged private trade from participating in procurement operations and therefore, the share of procurement by Government agencies in 2011-12 was 99% of market arrivals. It is ironic that there are reports of wheat movement from UP/Bihar to Punjab to meet the local demand. Despite huge collection of tax, Punjab Government has not created any substantial storage capacity from its own funds and it is totally dependent on GoI for its guarantee scheme.

2.9 In Punjab, arhtiya system is well entrenched and the commission to arhtiyas was increased from 2% to 2.5% in the year 1999-2000. The MSP has increased from Rs. 510 per qtl in the year 1999-2000 to Rs.1120 in the year 2011-12. The arhtiya commission has, therefore, increased from Rs. 10.20 to Rs. 28 per qtl. It is clear that the services provided by the arhtiyas

have not increased in any significant manner and yet their commission has been increased substantially. CMD, FCI headed a Committee as JS (Policy), which made a number of recommendations regarding reduction of cost of procurement through rationalizing procurement incidentals. It was recommended that arhtiya commission need not be fixed on the percentage of MSP. This recommendation is, however, yet to be implemented.

2.10 In Punjab, the mandi system is very well organized and foodgrain stocks are brought by farmers to the mandis and procurement is done through arhtiyas. FCI has its own 28.31 lakh tonnes, storage capacity (Covered + CAP) in Punjab out of the total 156.27 lakh tonnes, storage capacity in the country as on 15.05.2011.

2.11 FCI has 2303 category III staff in Punjab as against 16877 in the country as on 31.03.2011. Typically, in ev;jlkery FCI procurement centre, there is a QC official while the State agencies do not have dedicated QC staff at each centre.

3. Paddy procurement in Punjab:

3.1 The share of FCI in procurement of paddy in KMS 2010-11 was only 4%. In 2008-09 and 2009-10, FCI's share in total procurement of paddy was 2% and 5% respectively. As mentioned above, the statutory taxes in Punjab have been increased substantially during the last few years and total tax burden for purchase of paddy during KMS 2010-11 is Rs. 1925 Crores at MSP of Rs. 1030 per qtl. for Grade 'A' variety of paddy.

3.2 More than 99% of the rice procured in Punjab region is through Custom Milled route and private purchase by millers is negligible due to high incidence of taxation. During KMS 2009-10, only 0.25 lakh tonnes of rice was received through statutory levy route. It is pertinent to mention here that during KMS 2007-08, a total of 10.67 lakh tonnes of rice was procured through levy route. Procurement through levy route is less expensive for the Government as levy rate in Punjab for KMS 2010-11 was Rs. 1765.60 per/qtl against Rs. 1908.95 per/qtl. of Custom Milled rice.

3.3 In Punjab, all payments to farmers are routed through arhtiyas and payment of MSP and bonus is also made by FCI to State agencies through arhtiyas only who, in turn, make payment to State agencies. FCI issued an order on 26.08.2010 making it mandatory the direct payment to farmers for the paddy purchased by FCI only in KMS 2010-11. However, in the meeting held in Punjab, between Food Minister and Chief Minister of Punjab, it was decided that this order may be withdrawn. Accordingly, FCI withdrew the order and continued payment through arhtiyas. A major reform in Punjab and Haryana would be, for Government of India to issue directives to

State Governments that payment of MSP and bonus may be made to farmers by cheque or by direct cash transfer and payment for arhtiya commission may be made to arhtiyas. Government of Madhya Pradesh during RMS 2011-12 has shown that it is possible to directly credit the farmers' bank account. Therefore, there is no reason why Punjab cannot achieve the same. However, Government of India can persuade Government of Punjab to implement this system. It will be possible to replicate it in Haryana also.

4. Wheat procurement in Haryana:

4.1 The share of FCI in procurement of wheat in 2011-12 is 12% as on 30.05.2011, whereas during 2009-10 and 2010-11, FCI's share in total procurement was 13% & 15% respectively.

4.2 State Government of Haryana has imposed a total statutory tax of 10.5% i.e. to purchase one quintal of Wheat during RMS 2011-12, at MSP of Rs. 1120 per quintal, Rs. 117.60 is paid by GoI as taxes, thereby transferring around Rs. 800 Crores to the State exchequer for purchasing 68.67 lakh tonnes of wheat during RMS 2011-12. Due to this high taxation structure in Haryana, the purchase of wheat by private trade is negligible and more than 99% of the market arrivals is purchased by Government agencies.

4.3 The major responsibility for procurement of wheat in Haryana is taken by the State agencies. Major State agencies undertaking procurement in Haryana are State Civil supplies department, HAFED, CONFED, AGRO & HWC.

4.4 In Haryana, only a few agencies like HSWC & HAFED have dedicated Quality Control cadre. Whereas, other agencies in Haryana manage wheat procurement and storage operations without any specialized QC staff.

4.5 In Haryana also, the mandi system is very well organized and foodgrain stocks are brought by farmers to the mandis and procurement is done through arhtiyas. FCI has 7.68 lakh tonnes of owned covered storage capacity as on 15.05.11 in Haryana, as compared to total covered capacity of 129.91 lakh tonnes in the country.. Moreover, FCI has only 736 category III staff in Haryana as against 16877 in the country as on 31.03.2011.

5 Paddy procurement in Haryana

5.1 The share of FCI in procurement of paddy during KMS 2010-11 is only 1.27%. In 2008-09 and 2009-10, FCI's share in total procurement in Haryana was only 0.55% and 1.65% respectively. As mentioned above, the statutory taxes in Haryana are substantially high, as compared to the states like Bihar and Uttar Pradesh and total transfer of funds from Central

Government to State Government was for purchase of 24.82 lakh tonnes paddy during KMS 2010-11 would be approx. Rs. 270 Crores.

5.2 More than 97% of the rice procured in Haryana region is through Custom Milled route and private purchase by millers is negligible due to high incidence of taxation. During KMS 2010-11, merely 0.24 lakh tonnes of rice have been received through statutory levy route. In 2007-08, procurement of rice through levy was 3.78 lakh tonnes.

6. Procurement Operations in Madhya Pradesh

6.1 Wheat procurement in MP was only 57000 tonnes in RMS 2007-08. In 2011-12, the procurement has already reached 48.94 lakh tonnes as on 06.06.2011.

6.2 MP became a DCP State in the year 1999-2000 and the responsibility for procurement has been taken by the State Government.

6.3 Following important measures have been taken by the State Government to augment the wheat procurement

6.3.1. In RMS 2011-12, State Government declared a Bonus of Rs.100/-Per Quintal so as to motivate the farmers for increasing the area under cultivation for wheat. Similarly during RMS 2010-11, State Government declared a bonus of Rs. 100/- per qtl.

6.3.2. Agencies like NBHC, NCMSL and NAFED were also engaged in the year 2008-09 by the State Government for augmenting wheat procurement. The policy was however discouraged by GoI and therefore private agencies like NBHC & NCMSL have not been engaged in RMS 2010-11 & 2011-12.

6.3.3. Mandi authorities were also engaged for MSP operations in a big way wherein committees were formed to ensure that the farmers do not face any difficulty in selling their produce in mandis and sub mandis.

6.3.4. Private Warehouses were also brought into the system of MSP operations by hiring them for storing the newly procured wheat so that lack of sufficient storage space does not become a constraint in procurement operations. In RMS 2010-11, State Agencies hired 6.48 lakh tonnes of Storage Capacity from private sources. The State Government used its powers of requisition, under M.P. Accommodation Requisition Act 1948, to forcefully taken on hire the godowns owned by private parties.

6.3.5. Bureaucratic machinery was used at the highest possible level by making District Collectors themselves (instead of the earlier prevailing practice of nominating MPSCSC authorities) as Nodal authorities since 2008-09 for undertaking procurement

operations in their districts. Further, day-to-day monitoring is carried out by Chief Secretary.

6.3.6. Strong political will of the State Government was amply manifested by close and regular monitoring by the Chief Minister himself. This is further supplemented by frequent visits of Chief Minister and other Ministers to various mandis of State to personally supervise the procurement operations.

6.4 As per the DCP agreement, FCI takes over the surplus quantity procured by the State Government. The total off-take under TPDS & OWS in the year 2010-11 in MP was 25.43 lakh tonnes. Thus, FCI should take over about 20 lakh tonnes of wheat in 2011-12.

6.5. Data of market arrivals is accurately captured and a computerized system has been put in place

7. Procurement Operations in Rajasthan

7.1 In Rajasthan, despite the best efforts by the FCI, State agencies carry out very little wheat procurement. During RMS 2011-12, out of the total wheat procurement of 11.03 lakh tonnes, only 0.93 lakh tonnes and 0.84 lakh tonnes have been procured by RAJFED & Tilam Sangh as, respectively on 01.06.2011. Whatever wheat is procured is taken over by FCI within 24 hours and payment is made. As a result, State agencies of Rajasthan have not taken any credit limit from RBI. Thus the State Government has almost totally absolved itself of taking any responsibility of storage of wheat.

7.2 In almost every Kharif Marketing Season, Government of Rajasthan makes request for procurement of bajra by FCI and every year FCI and the Government of India has been advising the State Government to gear up its own machinery for procurement on MSP, but the Government of Rajasthan has not taken any significant initiative to gear up its machinery. As a result, there is a probability of prices going down below MSP.

7.3 Efforts are required by State Government to strengthen the State machinery for procurement operations as there is good potential for procurement of wheat and coarse grains. State Agencies should also create a specialized QC cadre so that specifications prescribed by GoI are adhered to.

7.4 Instances have been noted, where genuineness of the farmers from whom wheat is purchased under MSP has been questioned. Therefore, it was made mandatory in the Region to obtain Girdawari report & photo identity from farmers as proof of their genuineness and to

ensure more transparency. However, the State Government of Rajasthan appears to be reluctant in issuing the notification in this regard and has been rather insisting FCI to continue the procurement operations as the State machinery is doing verification part to ensure genuineness of farmers. GoI needs to address the issue by using clear guidelines as to whether any document of land ownership & cultivation are to be checked at procurement centres.

7.5 There is an urgent need for the State of Rajasthan to come forward with concrete proposals to provide storage space and funding the procurement operations being undertaken by Government Agencies so that they are able to enhance their procurement, instead of depending entirely on GoI for availability of storage facility. State Government may be directed by GoI to come out with its own scheme for creation of storage facility in the State.

8. Procurement Operations in Chhattisgarh

8.1 Chhattisgarh is a DCP state since 2001-02. As per MoU signed between GoI and Government of Chhattisgarh, the entire MSP operations are to be carried out by the State. As per the MoU, the State is to retain its actual requirement of PDS with them and pass on the surplus stocks to F.C.I. However, the State Government has been making requests to ease their burden by transferring huge quantity of paddy stocks to FCI. Under the pressure of State Government, the GoI allowed taking over of paddy, by FCI & accordingly FCI took over following quantity:

[Quantity in lakh tonnes]

KMS	Total Paddy Procured	Paddy transferred to FCI
2001-02	13.34	-
2002-03	14.74	-
2003-04	27.05	-
2004-05	29.04	3.83
2005-06	35.00	11.98
2006-07	40.00	12.37
2007-08	31.64	7.16
2008-09	37.59	8.52
2009-10	44.28	2.00
2010-11*	51.14	10.06

*As on 03.06.11

8.2 As the table in para 8.1 shows, procurement of paddy has gone up from 13.34 lakh tonnes in the year 2001-02 to 51.13 lakh tonnes in the year in 2010-11 (estimated). A statement

showing the incentive given by State Government for milling of paddy and the rates given by FCI is enclosed at **Annexure IV.** In view of the growing disparities in the charges payable for milling, millers prefer to mill paddy retained by Chhattisgarh Government Milling of paddy transferred to FCI is always an uphill task for FCI Management.

8.3 Paddy is stored in the open kutcha ground called Paddy FUD on unscientific dunnage. During rainy season the bags get damaged while loading into trucks for transportation to FCI storage points and are dragged in the muddy ground. Thus condition of the bags containing paddy being received in the FCI storage points is not very good. These bags are further used by millers for delivering Custom Milled Rice which compromises the sturdiness of packed rice and carries the risk of spillages in multiple handling during dispatch. Besides, the bottom layer bags get damaged during rainy season. In order to avoid such situation, infrastructure development at paddy storage points is required by constructing scientific Plinths and also usage of scientific dunnage for storing the paddy by the State Government instead of the usage of dunnage of two layer polythene bags filled with paddy husk.

8.4 The total available storage capacity for storage of foodgrains in the State of Chhattisgarh is 19.23 Lac MT (as on 31-3-2011), out of which FCI has only 5.12 Lakh tonnes of its own capacity. However, the State Government has not created any additional storage infrastructure for storage of paddy or rice. As a result, State Government is always blaming FCI for not taking over rice from State agencies. On the other hand, FCI has not been able to take over rice offered by the State agencies as it is not able to move a higher quantity to consuming States due to inability of consuming States to lift the entire allocation. Moreover, FCI has also not been able to get the required number of rakes from the Railways due to which movement out of Chhattisgarh has been hamperedUnder the PEG Scheme (meant for DCP States) the H.L.C. has approved construction of 2.17 Lac MT capacity godowns in the State, and the process of construction of godowns is in progress.

9 Uttar Pradesh

9.1 UP was a DCP state till RMS 2010-11 and total procurement of Wheat during RMS 2011-12, is 26.39 lakh tonnes as on 07.06.11. The total procurement of wheat during RMS 2010-11 & RMS 2009-10 was 16.45 & 38.82 lakh tonnes respectively.

9.2 After opting out of DCP mode of procurement, the procurement of rice/wheat has gone down substantially. During KMS 2010-11, a total of 23.51 lakh tonnes of rice has been procured as on 04.06.2011, whereas during KMS 2009-10 & 2008-09, the total rice procurement was

28.98 & 40.04 lakh tonnes respectively. In UP, out of the total procurement of rice, a major portion comes through levy route. The comparison of CMR & Levy procurement during last 3 years is as under:

[Quantity in lakh tonnes]

KMS	CMR	Levy	Total
2010-11 (04.06.11)	9.69	13.82	23.51
2009-10	9.34	19.64	28.98
2008-09	21.89	18.15	40.04
2007-08	14.69	14.07	28.76

9.3 FCI has to play a major role in procurement operations, after UP decided to come out of DCP system of procurement, which has resulted in serious infrastructural constraints in terms of storage capacity, manpower etc. These reasons for opting out of DCP system need to be investigated in detail and suitable corrective action may be taken by Government of India for a more efficient system for settlement of claims of procurement incidentals. Officers of State Government of UP have been mentioning in meetings that there were reports of procurement of poor quality of rice by officials of State agencies, when UP was in DCP mode. This was perhaps true as same officials were responsible for procurement of rice and its off take under PDS. Therefore, the decision to shift from DCP to non DCP mode was taken by Government of UP.

9.4 There is no established mandi system in most of the parts of the State, which further impacts the procurement operations adversely. Also State Government doesn't have any mechanism to track the daily mandi arrivals. In the past, State Government has been changing the figures of paddy procured by rice millers (KMS 2009-10). Despite repeated suggestions of FCI, Government of UP has not developed a computerized system of recording arrivals in mandis.

9.5 The state of UP has tremendous potential for enhancement of procurement of wheat & Rice. The State Government has to be put in serious efforts to strengthen the existing infrastructure in terms of opening more purchase centres, increasing storage capacity, so that the Government agencies can play effective role in procurement operations, ensuring MSP to the farmers.

9.6 The State Government should also provide sufficient credit facilities to its agencies, so that agencies are able to make payment to the farmers immediately after purchase of stock.

10. Bihar

10.1 Bihar is a Non DCP state. Bihar does not have any organized Mandi System. Temporary Purchase centres are opened every year by State Government. Till 2007-08, there was negligible procurement of wheat and rice in the region. However, during RMS 2008-09 & 2009-10, 5.0 & 4.97 lakh tonnes of wheat was procured, respectively. Similarly, after KMS 2007-08, there was substantial increase in rice procurement in the region. The rice & wheat procurement for last 3 years is as under:

[Figs. In lakh tonnes]

KMS/RMS	Wheat	CMR	Levy	Total
2008-09	5.0	8.59	2.55	11.15
2009-10	4.97	6.79	1.75	8.54
2010-11*	1.83	7.50	0.54	8.04

**as on 06.06.11*

It is worth mentioning here that there is a huge potential of augmenting the procurement operations in the region, which is evident from the fact that only about 10% of the wheat and about 15-20% of the total rice produced in the state, is procured by Government agencies. The main hindrances, which are affecting the procurement operations in Bihar Region are as under:-

10.1.1. There is no organized mandi system in the state, thereby hampering the outreach of procuring agencies. Moreover, any control mechanism viz. monitoring of daily arrivals, controlling distress sale etc., can only be implemented when there is a established system of mandis, having adequate space for loading, unloading, bagging, weighment etc.

10.1.2. State Government has not been able to create the requisite infrastructure in terms of Storage Space, Manpower etc and thereby procurement operations are not carried out in the desired manner.

10.1.3. Most of the mills working in Bihar Region are Huller and Shellers, having very low milling capacity. High Capacity Modern rice mills are not adequate in Bihar

Region. Therefore, due to poor milling infrastructure in Bihar Region, Milling of paddy is always a constraint in various pockets in the State.

10.1.4. Procurement of wheat in 2008-09 and 2009-10 was carried out by PACS. The wheat procured by PACS is delivered to FCI for storage and outward movement. There is no other agency in Bihar which can store wheat procured by PACS. BSWC is almost a defunct Corporation and it is not in a position to take over any wheat procured by PACS.

10.1.5. Unlike other procuring States, Government of Bihar has not ensured any credit limit to procuring agencies. As a result, the procuring agency first purchase wheat or paddy from farmers, deliver it to FCI and only after receiving payment from FCI, the farmers are paid. This cycle may take 1-3 weeks. In effect, it becomes an interest free loan from farmers to State agencies of Bihar.

10.1.6. In the existing system of custom milling, State agencies have to procure paddy from farmers, they have to get it milled and deliver the custom milled rice to FCI for which the cost sheet is issued by the Government of India and procurement is accordingly made. However, due to inability of PACS in Bihar to undertake this, Government of India almost forced FCI to take over paddy from PACS in KMS 2008-09. Accordingly, FCI took over 0.95 lakh tonnes of paddy in Bihar and got it milled with great difficulty as Bihar does not have adequate number of rice mills and paddy has to be taken to long distances for milling.

10.1.7. The State Government almost absolved itself of any responsibility to undertake procurement of paddy in a systematic manner and its milling and instead this responsibility was taken by FCI in KMS 2008-09. Incidentally, during its review it was found that at several depots of FCI viz. Dumraon, Behiya, Chausa, Buxar, Biharsharif, SWC Raxaul, SWC Bettiah, NRPA & Koinee, stock of rice is not accounted for and investigation has already been ordered.

10.1.8. FCI in Bihar region has only 5.70 lakh tonnes of covered storage capacity, which is hardly sufficient to store only two months' allocation. The total capacity available with State Agencies is meager. Also the majority of the storage capacity, available with FCI is concentrated in only a few districts viz. Gaya, Rohtas, Saharsa, Patna, & Buxar, whereas in the districts viz. Lakhi Sarai, Gopalganj, Sheohar, Banka, Jahanabad, Arwal, Darbhanga & Bhabhua there is no storage capacity. Therefore,

other pockets of the states are deprived of the storage space, due to which procurement operations are hampering.

10.1.9. It is true that in the last few years, due to implementation of the schemes undertaken by Ministry of Agriculture, production of wheat and rice have increased. However, there has not been commensurate investment in physical and human infrastructure by the State Government as a result of which marketing of these products is not systematized. Therefore, if the farmers of poor States have to be ensured the benefit of MSP, the following action should be taken on topmost priority by the State Government:-

10.1.9.1. Accessibility to farmers to procurement centres needs to be ensured by opening procurement centres even in interior areas.

10.1.9.2. State agencies have to be given enough credit so that they can make payment of MSP to farmers immediately instead of waiting for FCI to take over the stock.

10.1.9.3. State agencies have to be sanctioned adequate manpower including Quality Control staff for undertaking procurement operations.

10.1.9.4. Adequate storage capacity needs to be created in various districts so that States are not entirely dependent on FCI for taking over wheat and paddy procured by the State Governments like Chhattisgarh and Odisha, State Government has to make substantial investment in creating physical and human infrastructure, dedicated to procurement and marketing of foodgrains.

10.1.9.5. Bihar Government may be directed by Government of India to become a DCP State. The annual allocation of wheat and rice to Bihar was 18.77 and 26.43 lakh tonnes respectively during 2010-11 and there is no need for the State Government to depend entirely on FCI for meeting its requirement.

11. Maharashtra:

11.1 Maharashtra is not a DCP State and the procurement operations are carried out by State Government and its agencies viz. MARKFED & TDC. FCI undertakes procurement of Levy Rice mainly in the Vidharbha Region of Maharashtra. There is no compulsory levy obligation upon the millers of Maharashtra.

11.2 There has been a consistent demand from the millers of Maharashtra to relax the specifications of paddy and rice, causing the delay in paddy milling. The delay in milling of the paddy procured has been a regular practice with the State Government Agencies during the previous crop years also. The milling has only been completed after repeated extensions in milling period allowed by Government of India even during KMS 2005-06, 2006-07, 2007-08, and 2008-09. It is pertinent to mention here that 0.83 lakh tonnes rice of KMS 2009-10 and 1.24 lakh tonnes rice of 2010-11, is yet to be delivered by State agencies of Maharashtra under CMR.

11.3 In Maharashtra, paddy is produced in Nagpur, Bhandara, Gondia, Chandrapur, Gadchiroli, Thane, Raigad, Sindhudurg and Ratnagiri districts. However, some of these districts do not have any substantial milling capacity and presently, the paddy procured by State agencies form Gadhchiroli etc. is transported to Gondia, which is about 150 kms. Thus, there can be substantial saving, if the State agencies can incentivize milling of paddy locally.

11.4 State Government of Maharashtra is already carrying out the procurement of paddy under MSP Scheme for the Central Pool in Maharashtra. The paddy so procured is got milled by the State Agencies and the resultant Rice(CMR) is delivered to FCI, which is again issued to the State Government under PDS/OWS. Therefore, Maharashtra being a Rice consuming state under PDS with allocation of 20 Lakh MT per year, the Government of Maharashtra may be directed by GoI to switch over to the DCP mode so that the Rice procured locally could be retained by the State Government and distributed under PDS, instead of delivering to FCI. This will save the State Government from delayed milling, storage charges and transportation by directly receiving the stocks at the issue point. This matter was also discussed in a meeting taken by Hon'ble Minister on 09.11.2010, which was attended by Food Minister, Maharashtra and Dy. CM, Maharashtra. However, final decision is still to be taken by the State Government

11.5 In addition to Rice, Coarse grains are also procured by the Government of Maharashtra through its agencies i.e. MARKFED & TDC under the MSP Scheme and the same are disposed off by tender sale. The State Government had been requested time and again to explore the possibility of the distribution of coarse grains under PDS. However, the State Government have informed that there is no demand for coarse grains under PDS. FCI has also suggested to Government of India that all the State Governments should be authorized to sell coarse grains through tender sale without involving FCI. Presently, coarse grains are procured by State Governments but they are sold through tenders by FCI. Since the major responsibility of procurement is with the State Government, there is no reason why Government of India should

not trust the State Governments to realize the best possible price for coarse grain through tender sale. This will reduce the time taken to sell the surplus stock of coarse grain. If this proposal is approved by the Government of India, State Government can directly claim the difference between the economic cost of coarse grain and the sale price realized through tender sale from Government of India.

12. Tamil Nadu

12.1 Tamilnadu is a DCP state, where Tamilnadu Civil Supplies Corporation undertakes the majority of procurement operations. The State Government of Tamilnadu is having around 11 lakh tonnes (owned+hired) storage capacity and another 3.5 lakh tonnes is proposed to be built under PEG scheme. Around 16-18 lakh tonnes of paddy is procured every year and is stored in CAP, which is generally done in unscientific manner. The augmentation of storage capacity is expected to overcome the problem of storage.

13. Kerala

13.1 Kerala became a DCP State in the year 2005. A statement showing the estimated procurement and actual procurement in the State since it became DCP State is given below:-

Year	Production	Estimated procurement	Actual procurement
2004-05	--	--	0.52 LMT
2005-06	--	--	1.39 LMT
2006-07	6.7 LMT	3 LMT	2.26 LMT
2007-08	6.4 LMT	3 LMT	2.51 LMT
2008-09	7.04 LMT	3.5 LMT	3.54 LMT
2009-10	7.2 LMT	4 LMT	3.89 LMT
2010-11*	8.0 LMT	3.9 LMT	3.71 LMT

**As on 31.05.2011*

13.2 Kerala Civil Supplies Corporation (Supply-Co) is the Nodal Agency nominated by the State Government for procurement of paddy. The State Government has been announcing a bonus on paddy. Following tables shows the bonus announced by the State Government since the State became a DCP State:-

KMS	Bonus given by State Government per quintal (Rs.)
2004-05	140
2005-06	137
2006-07	270
2007-08	255
2008-09	200
2009-10	200
2010-11	300 (1st Spell), 400 (2nd Spell)

13.3 Procurement undertaken by Supply-Co is done through Co-operative Societies of Farmers which open procurement centres in the State. These centres are operated in the villages by the Co-operative Societies. According to information available, the paddy is procured by Supply-Co and it is handled within their State.

13.4 The resultant rice of paddy procured by Civil Supplies Corporation, ie. Supply-Co is generally distributed within the same District in which the quantity is procured. Once the paddy is procured, it is handed over to Rice Millers for milling of paddy and then the resultant rice is taken over by Supply-Co.

13.5 After Milling the rice is handed over to authorized wholesale dealers for distribution under PDS. The State Government claims the incidentals directly from the Central Government.

13.6 There is no levy imposed by the State Government and the Millers do not purchase any paddy from the farmers. Therefore, the entire procurement of paddy is through CMR route. The rates fixed for CMR by GoI in the last 4 years are as under:-

	Grade-A	Common
2006-07	--	Rs.1,270.67
2007-08	--	Rs.1,494.83
2008-09	Rs.1,832.44	Rs.1,780.07
2009-10	Rs.2,024.23	Rs.1,971.48
2010-11	Rs.2,076.25	Rs.2,023.75

14. Gujarat

14.1 Gujarat is a DCP state for the procurement of wheat and the procurement operations are undertaken by the Cooperative Societies engaged by State Government There is no procuring/technical staff with the State Government and the existing staffs of G.S.C.S.C Ltd. is supervising wheat procurement operations.

14.2 It has been felt that if the procurement is directly undertaken by State Government and payment to the farmers are regulated within time frame fixed by Government of India, additional 2 to 3 lack MTs of wheat can be procured directly from the farmers. The annual allocation of the state is 15 lacks MT of wheat and same is fulfilled through inducting wheat from other producing regions. Strengthening the procurement operations may save huge transportation cost, which is presently incurred on transporting food grains from North India into the State

14.3 It is also to mention that there is an urgent need to create suitable infrastructure by State Government or Agriculture market committees.

15. Jharkhand

15.1 Jharkhand is a non-DCP state and no organized mandis are available. Despite production of rice to the tune of 25 to 35 lakh tonnes, the procurement has been negligible barring the years 2007-08 & 2008-09.

15.2 Jharkhand is facing acute shortage of storage capacity. The FCI has about 1.2 lakh tonnes storage capacity, whereas average monthly off-take of rice and wheat is around 1.2 lakh tonnes. The revenue districts viz. Godda, Jamtara, Pakur, Khunti and West singhbhumi do not have any storage capacity of FCI. Under PEG Scheme 1.75 lakh tonnes storage capacity has been sanctioned. However despite, continuous follow up no tangible results have come out.

16. Karnataka

16.1 Karnataka is a DCP State and the entire procurement operations of Paddy/Coarsegrains under MSP and the procurement of Mill levy rice is being carried out by the State Government through its Agencies. Karnataka is a deficit State, wherein about 1 to 1.5 lakh tonnes rice is

procured and the total annual allocation of rice during KMS 2010-11 was 26.24 lakh tonnes. There is a huge scope of augmenting rice procurement operations in Karnataka as presently only 3-5% of the total produced stock is procured for central pool. The strict and uniform enforcement of levy order on millers may enhance the levy rice procurement. Also, the State Government may be advised to boost up the procurement of paddy so that procurement through CMR may also be enhanced.

17. Uttarakhand

17.1 Uttarakhand became a DCP State in the year 2002-03. Its allocation of rice is only about 2.40 lakh tonnes and procurement is more than its requirement. Paddy is procured by the State Civil Supply Corporation, Cooperative Societies, SWC & Agro and it is milled by the rice mills and delivery is taken by the State agencies and the resultant rice is distributed under PDS.

17.2 FCI has a storage capacity of 2.20 lakh tonnes. The State Government has not made any substantial investment for creation of storage capacity. Since Uttarakhand is now a DCP State, Government of India may direct Government of Uttarakhand to create storage capacity for storing foodgrains procured under DCP mode.

18. FCI's Suggestions:

18.1 From the existing data of production, it seems to be possible that procurement of wheat can be increased in Bihar, Gujrat, Rajasthan and UP. Similarly, procurement of rice can be increased in UP, Bihar, West Bengal, Maharashtra, Karnataka and Assam. However, for achieving this, the following suggestions are made:

18.1.1 All these States must be directed to become DCP states so that the responsibility for procurement of foodgrains, storage and distribution under TPDS is taken up by the state Government Surplus stocks in these States may be taken over by FCI for movement to deficit States.

18.1.2 In all the DCP States, State Governments should be directed to create a suitable cadre for QC and Accounts officials, so that proper records of procurement operations are kept and food grains are procured within the specifications fixed by the Government of India. Extensive efforts are needed to maintain quality of foodgrains procured by the State agencies. This will mean a

substantial increase in expenditure on manpower in these states which should be suitably reimbursed by Government of India under DCP mode.

18.1.3 Similarly, all rice producing States may be directed to switch-over to DCP mode. In case of States having large off-take of rice (e.g. Andhra Prades), this will facilitate procurement and distribution by the State Government as FCI will not have to take over surplus stocks. e.g. In KMS 2009-10, total procurement of rice in Andhra Pradesh was 75.55 lakh tonnes, while the total off-take was 42.38 lakh tonnes. Thus, FCI first took over the entire quantity of rice and then issued the same to State Government. Thus, involvement of FCI can be avoided by persuading the State Governments to become DCP States. As the combination of raw and boiled rice procurement in AP region is in 60:40 ratios, the average raw rice procurement in the region is 50 LMT which is slightly higher than the PDS and other welfare requirement of the states. Thus, it would be prudent for the State Government to procure the raw rice for their PDS requirement under DCP model and surplus raw rice may be delivered to FCI.

18.1.4 The wheat procurement operations in the major procuring states viz. Punjab & Haryana are spread over a period of 45 days. About 90% of wheat arrivals take place within a short period of less than a month. Such trend of arrival causes glut in the procurement operations and there is extreme pressure of lifting/transportation and storage of Wheat in the concerned State. The comparative position of Punjab & Haryana with respect to Wheat procurement is as under:

[Figures in lakh tonnes]

	RMS 2010-11			**RMS 2011-12**		
	Total Procurement	Procurement During April	% of total Procurement	Total Procurement	Procurement During April	% of total Procurement
Punjab	102.05	97.57	96%	109.28	90.86	83%
Haryana	63.35	61.54	97%	68.79	57.25	83%
MP	35.38	21.27	60%	48.94	25.34	52%

It can be seen in above table that around 90% of total wheat procurement in Punjab & Haryana comes within the April month itself, causing strain on the existing resources, both physical & manpower resources. In order to ensure that wheat procured in such a short time is

properly preserved, it is necessary that Government of Punjab should create suitable plinths for short time storage of wheat so that mandis can be cleared on the same day.

18.1.5. It has been observed that at the commencement of Rabi/Kharif marketing Season, the moisture content in paddy is usually high, due to mechanical harvesting as the harvested grains do not have sufficient time to dry up, before arrival in the mandis. Therefore, Paddy arrivals at the beginning of the marketing season are beyond specifications and in case such lots are rejected by the procuring staff, it creates the law and order problem and adverse publicity amongst the farmers.

18.1.6 The mandis/purchase centres are allotted to FCI by State Government, which keeps on changing as the season progresses. FCI has been emphasizing upon the State Governments. to allocate mandis on a long term basis so that requisite infrastructure can be created by FCI and to ensure effective procurement operations.

18.1.7 Further in some States like Bihar, although a large number of purchase centres are set up by the State Government, but the same are not fully operationalised with the result, that the FCI is expected to shoulder the major burden of procurement. In view of limited manpower of FCI, it is not possible for FCI to open large number of procurement centres. Even in the DCP States which are supposed to be exclusively managing their affairs, the FCI participation in procurement is solicited. For example, in Chhattisgarh, year after year, GOI decides to transfer paddy to FCI. FCI faces enormous difficulty in getting the paddy milled as FCI pays low rates for milling of Raw Rice as compared to State Government

18.1.8 In States like Bihar, Orissa & UP etc. where the land holdings are very small, the farmers do not have facilities to transport their produce to the purchase centres, hence they are exploited in the hands of private traders/middlemen. State Governments, in these areas, need to enhance the number of purchase centres which are within the reach of such farmers.

18.1.9 In some States like Orissa, Bihar, Jharkhand, Kerala, Maharashtra, UP, Tamil Nadu & West Bengal, the State Governments. are not keeping proper account of the daily arrivals and the daily purchases of paddy made by the private traders and the Government Agencies. In the absence of the correct data, the rice millers may be able to manipulate the quantum of purchases and hence quantum of levy deliveries. State Governments have to put in place an effective computerized system of recording daily purchase of paddy by each rice miller and upload their information on internet portal, so that any possibility of recycling of rice can be checked.

18.1.10 In several States, State agencies have been protesting that transportation charges of paddy and rice and milling charges of paddy are too low. e.g. the rice millers of Maharashtra, in the meeting with Hon'ble Minister, pointed out that milling charges are too low and it is not possible for them to deliver rice within the limit of 25% broken grain. Similarly, Government of Chhattisgarh has been giving milling charges of Rs. 45 per qtl for raw rice while Government of India gives milling charges of Rs.15 per qtl. CAG, on the other hand, has been writing that both the transportation and milling charges are too high. Department of Food has referred the matter to Tariff Commission. In the interest of expeditious milling, it is imperative that a final decision is taken on these two issues.

18.1.11 In the DCP States, the stock is procured by the State Government as well as by the FCI. While issuing the stocks, the State Governments are not following "FIFO" principle and they are issuing fresh stocks procured by them under PDS resulting into the old stocks remaining with FCI. The States may be asked to follow the "FIFO" principle taking into account the overall stocks with the State Governments. as well as FCI to avoid deterioration of the stocks.

18.1.12 From time to time, State Governments of DCP States have been pointing out that they have been suffering financial losses under DCP mode due to certain principles followed by Government of India while issuing the provisional cost sheet. This matter has been examined by two Committees. One was headed by Sh. Siraj Hussain, as JS (Policy) and the second committee was set up under the Chairmanship of Chief Advisor (Cost), Ministry of Finance. Both the reports have been submitted to the Government of India. Most of the recommendations of these two committees, however, have not been accepted by States. There is a need to evolve a simple system for fixation of procurement incidentals on a realistic basis. State Governments can be encouraged to switch over to DCP mode only if they do not have to incur any additional cost due to this.

18.1.13 The stock position of foodgrains is collected by FCI from its Regional Offices and also from State Governments. This includes the stock of un-milled rice which is lying with the State Agencies. In case of many States, it is observed that the opening balance at the beginning of the month plus procurement during the month minus off take during the month does not tally with the figures of closing balance. This situation is particularly acute in case of Bihar, UP etc.. As a result, FCI finds it very difficult to communicate the correct stock position to Government of India through IISFM. Almost every month, a number of phone calls have to be made to State Governments to give correct position of stocks especially the stock of paddy and un-milled rice

lying with the State Agencies. This also leaves a scope for occurrence of shortage in stocks. Due to the urgency of the matter, every month, Regional Offices of FCI try to reconcile the figures in consultation with the officers of State Governments and sometimes best possible guesses are fed into IISFM data base on the basis of which the stock position of the country is calculated. Needless to mention that this stock position is used by Government of India for formulation of policies. Therefore, there is a need to provide suitable manpower in State Agencies for computerization of operations.

18.2. Suggestions related to Storage:

18.2.1 Government of India vide its letter no. 20-3/2007-FC.II dated 28.07.2008 issued guidelines for identification of storage gap at various locations in the country. The guidelines for DCP states were circulated by the Government vide letter 20-3/2007-FC.II dated 08.04.2010. These guidelines provide the following basis for calculation of storage gap in non-DCP States:-

a. In consuming states: Based on four months PDS and OWS requirement.
b. In procurement states: Highest stock of last three years.
c. Such requirement will be considered at 80% utilization of capacities.

The guidelines for DCP states are as under:

(a) "The quantity equivalent to 14 months allocation under TPDS and OWS will be retained by the State Government and balance quantity will be taken over by FCI".

(b) Assessment of Storage capacity:

(i) For each month in the year, the sum of average stock of wheat and rice in a month in the last three years will be calculated.

(ii) The highest of the sum of average stock of wheat and rice will be considered as the storage capacity required if it is less than 14 months requirement under TPDS and other welfare schemes. If this is excess of the state's 14 months' requirement under TPDS and other welfare schemes, such excess stocks will be taken over by FCI and suitable storage capacity will be created by FCI for management of these stocks. If

sum of average stock is less than requirement of 4 months TPDS and other welfare schemes, then the requirement of 4 months would be considered.

(iii) At the Micro level, the requirement of storage capacity will be assessed in the following manner:

(a) In plain areas, the existing storage capacity within 100 kms available with FCI/CWC/SWC and other State Agencies will be taken into account.

(b) In hilly areas, the existing storage capacity within 50 kms available with FCI/CWC/SWC, other State Agencies will be taken into account.

18.2.2 In several states, the requirement of storage capacity by the above formula does not take into account the potential for procurement as a result the storage capacity sanctioned will be less than the requirement, if the States (e.g. Bihar and West Bengal) reach their potential for procurement. Therefore, Government of India needs to revise its policy for assessment of storage capacity in procuring States, having potential for paddy procurement. Also on ad hoc basis, Government may consider sanctioning at least 5 lakh tonnes capacity each in Bihar and West Bengal.

18.2.3 It is to be clearly understood that storage capacity being created now under the guarantee scheme may not remain fully utilized during the entire period of guarantee of 10 years. In the previous scheme in 2008, FCI created 69.06 lakh tonnes storage capacity under 7 years guarantee. Some capacity in Andhra Pradesh remained unutilized during the year 2006 for which CAG raised serious objections.. It is, therefore, suggested that CAG should also be informed by GOI of the imperatives of creating storage capacity in the interest of providing food security to the nation. A specific order may also be issued by GoI that the storage capacity created under PEG is strategic infrastructure, which may or may not be fully utilized in future.

18.3. Suggestions related to QC:

18.3.1 Almost every year several State Governments. approach the Government of India to relax the specifications of Paddy and Rice. Sometimes they approach the Government of India for

relaxation in specifications of Wheat also. A statement showing the relaxation in specifications given by GOI in the last 5 years is enclosed at **Annexure-V**.

18.3.2 For giving the relaxation sometimes the GOI seeks a report from FCI, which should be submitted on the basis of collection of samples and its analysis. At times, the GOI wants that FCI should not collect any samples and recommendation should be sent to Government Moreover, the decision on relaxation is taken after collection of samples and their analysis by the S&R Division of the Ministry, Deptt. of Food. In some other cases the samples are not collected and analysed by S&R Div. and this work is performed by FCI e.g. relaxation in paddy and rice in A.P., Orissa and Chattisgarh in KMS 2010-11.

18.3.3 The decision to relax the specifications of paddy, therefore, take some time and the following table shows the date of giving relaxation in paddy in various States in the last 2 years:-

S.N.	State	KMS	Date of Relaxation
1.	Tamilnadu	2009-10	26.2.2010
2.	Orissa	2009-10	31.12.2009
3.	A.P.	2010-11	17.2.2010 & 31.12.10
4.	Punjab	2010-11	2.11.2010
5.	Orissa	2010-11	10.1.2011 & 1.4.2011
6.	Chhattisgarh	2010-11	31.1.2011
7.	Tamilnadu	2010-11	25.10.2010

18.3.4 It may be seen that the decision to give relaxation in specification of paddy in Punjab was taken on 02.11.2010, whereas the procurement started from 1st October in KMS 2010-11 and already 101.62 lakh tonnes, of paddy was procured. Similarly, in A.P. relaxation was given by Government on 31.12.2010 by which 2.0 lakh tonnes paddy had already been procured by State Government, while rice millers were showing reluctance in procurement of paddy . In Punjab, Paddy is primarily bought by the Government agencies and, therefore, without waiting for relaxations from Government of India, the State agencies start procurement of paddy. However, in A.P. it is primarily through levy and most of the paddy is bought by the rice millers. As a result, in A.P. the millers were reluctant to buy paddy till the relaxation is given by the GOI. It became a big political issue in A.P. in KMS 2010-11 and there were a number of adverse media reports about farmers agitating, as their paddy was not being bought at MSP. The following suggestions are, therefore, made for consideration of Government of India:-

[i] Relaxation in specification of paddy, rice and wheat may be decided after collection of samples and their analysis by S&R Div. of the Deptt. of Food. As

far as possible FCI may not be engaged in this exercise as FCI's recommendations for relaxation may not be entirely objective.

[ii] The decision to give relaxation in specifications should come expeditiously so that the procurement operations can continue smoothly.

18.4 Manpower related issues:

18.4.1 The sanctioned strength of FCI manpower has come down from 57580 as on 1.4.2005 to 36515 on 01.04.2011. The recruitment of staff in FCI remained totally banned from the year 1984 to 2001, except 240 posts in the year 1994 and 'Special Recruitment Drive' for SC/ST for backlog vacancies. After 2001, the recruitment under "Annual Direct Recruitment Plan' through the mechanism of Screening Committee was permitted under 'Optimization of direct recruitment to civilian posts' scheme. As a result, the manpower in position on 31.12.2010 was 31247 against 44156 in 2005. At every procurement centre, FCI needs at least one person of accounts and quality control each. If the State Governments are directed by Government of India to become DCP States, additional requirement of staff of FCI may be kept within reasonable limits.

18.4.2 The administrative cost of FCI has also been increasing primarily on account of implementation of the recommendations of 6th Pay Commission. The following table shows the staff cost of FCI in the last 5 years:-

Year	Staff Cost (in Rs Crores)
2006-07	1239.63
2007-08	1269.20
2008-09	2251.14
2009-10(Prov.)	1846.50
2010-11(RE)	3037.25

18.4.3 A statement showing the item-wise staff cost, as approved in the Performance Budget of 2011-12, is enclosed at **Annexure-VI**.

18.4.4 The per tonne labour cost of FCI is increasing. The cost of per tonne labour under various systems operated by FCI is at **Annexure-VII**

18.4.5 Under the Contract Labour (Regulation & Abolition) Act, 1970, 288 godowns of FCI have been notified in which use of contract labour has been prohibited. 60 godowns were notified in April 2010 and 29 godowns have been notified by Ministry of Labour in Feb 2011. However, the godowns operated by the State agencies have not been notified so far under the said Act. In order to keep the cost low, the DCP mode may therefore be more suitable and economical.

18.4.5 Moreover, the departmental labour of FCI works like Government employees while the functioning of FCI is during fixed hours, but the Railways follow 24 hour schedule and the rakes are placed any time during the day or night. There is, therefore, an imperative need to exempt FCI from the purview of Contract Labour (Regulation & Abolition) Act, 1970 so that the operations of FCI can be conducted smoothly and rakes can be loaded and unloaded round the clock.

18.4.6 Various staff unions have been making the following major demands:-

18.4.6.1 Presently, the employees of FCI are not eligible for pension and they get only the Family Pension under the provisions of Employees Pension Scheme, 1995. This is a statutory scheme applicable to all establishments covered under the Employees' Provident Funds and Miscellaneous Provisions Act, 1952. Unions representing staff viz. BKNK Sangh (57.5% vote share) and FCIESU (38.4 % vote share) as well as Association representing Executives - FCI Officers' Association have been demanding that they may also be given pension at par with Government employees. Sooner or later, this demand is likely to be accepted by the Government which will result in substantial increase in administrative cost.

18.4.6.2 Employees of FCI are not eligible for full medical facilities after retirement while in the case of Government employees full medical benefits are available to the employees. The above mentioned unions/associations have been demanding that FCI employees may also be paid at par with Government employees. This demand is also likely to be accepted some time in future. This will also have substantial financial implications.

18.4.6.3 FCI has 20073 departmental labour who are treated at par with Class IV employees and all the benefits available to Class IV staff are extended to departmental labour also. Therefore, if and when a decision is taken to give pension and medical benefits to employees, the same benefits will also have to be extended to departmental labour. This will also have additional financial implications.

18.4.6.4 There are 20073 departmental labour, 31147 DPS labour and 1349 labour under 'No work no pay' system. Nineteen Unions/individuals have filed a case before NIT, Mumbai (Case No NTB-1/2003) in which they have demanded that DPS and NWNP labour may be given emoluments at par with departmental labour. If the decision goes in their favour, 31147 DPS and 1349 NWNP will get wages and emoluments at par with departmental labour. This is likely to have a financial implication of approx. Rs. 441 crore per annum.

18.4.6.5 FCI has engaged approx. 1 Lakh contract labour in 1087 depots. From time to time, Ministry of Labour prohibits engagement of contract labour in these depots . If all the depots in India are notified by Ministry of Labour, all the contract labour may have to be inducted in FCI under NWNP system. Even if, NWNP is presently only slightly more expensive than contract labour, over a period of time, it may be reasonably expected that labour unions will demand that NWNP labour may be paid at par with DPS labour or departmental labour.

18.4.6.6 In the depots notified by Ministry of Labour, the labour unions are demanding that all workers employed by the contractor may be inducted under No Work No Pay system. FCI has, however, been following certain norms for calculation of requirement of labour in these godowns. Labour unions are not even permitting quality control treatment of stocks and as a result 2.91 lakh tonnes of wheat and rice in 18 godowns is not being issued or moved. The value of this stock is Rs. 593.65 crore. Chief Secretaries of various States have been requested to provide police protection for quality control treatment and movement of stocks. But due to fear of large scale law and order problem, the State Governments have not been forthcoming in tackling the issue. The use of contract labour is constantly prohibited in FCI godowns by issue of notifications by Ministry of Labour. Several

suggestions have been made in this regard by the FCI and a draft note for Committee of Secretaries has also been submitted to the Government.

18.4.6.7 Operations of grain management are not conducive to the functioning in a Government set up where overtime has to be paid to staff and labour for loading and unloading of rakes after office hours. Moreover, the system of procurement and distribution is not uniformly distributed over the year as a result of which sometimes there are peaks when there is very heave work. A system of fully governmental employees managing the operations is bound to be more expensive. Therefore, a conscientious decision is required to be taken and FCI operations would not be allowed to be expanded any further and only DCP system should be allowed by Government of India.

18.5 Settlement of Procurement Incidentals

18.5.1 The provisional cost sheets are prepared by the Government of India on the basis of minimum support price and other incidentals charges which are primarily depending on the previous year's figures. Many State Governments, particularly Government of DCP states, have been raising the issue that the provisional incidental charges are much lower than actual charges incurred by them. They have been claiming that as a result of this, there is mismatch between actual expenditure incurred by them, the provisional incidental charges and final incidental charges sanctioned by the Government of India to DCP states. Resultantly, the States have to raise funds from banks from their budgetary resources (like in U.P. also when it was a DCP state). The Government of Punjab has also been raising this issue that it has to incur much higher incidental charges than what is provided by the GOI in the provisional cost sheet. Moreover in DCP States, GOI releases only 95% of subsidy which is calculated on the basis of provisional cost minus the central issue price fixed by the GOI. Thus, in case of DCP state, another 5% amount is locked up. This is released by GOI only when they submit their final accounts. It has been seen that the State Governments have not been able to finalise the accounts of State Agencies for several years as a result of which this 5% amount has also remained locked up.

18.5.2 In the Department of CA, F&PD, GOI, this work is handled by FC-I Accounts division which is grossly under-staffed to deal with the matter of sanction of incidentals. There is not a single Commerce graduate in FC-I and present officers/officials have no experience in dealing with matters of accounts and finance. A specific recommendation was given by committee headed by Shri Siraj Hussain, that FC-I section has to be suitably strengthened by creation of additional posts and posting of specialized personnel of costing background.

18.5.3 The subsidy released to DCP states in the year 2010-11 is as under:-

(Rs. Crores)

M.P.	2013.760
U.P.	2485.340
West Bengal	1241.070
Chhattisgarh	1923.480
Uttarakhand	299.360
Tamilnadu	1501.030

It is seen that large amounts of provisional subsidy are released by the GOI without having adequate manpower.

18.5.4 Moreover, when the State Governments of DCP states furnish their final accounts, the same are examined by Procurement Incidental Cell which was set up in the year 2009 under the Integrated Finance Division. This cell functions under the guidance of Advisor (Cost). Recently, one Deputy Director and Assistant Director have also been posted. This cell is basically functioning with eight people who are deployed on contract basis and are paid by FCI. It is therefore, suggested that if the procurement has to be increased, DCP system has to be encouraged and there is no option but to strengthen the FC-I Accounts section by sanctioning qualified staff which is trained to deal with claims of procurement incidentals.

18.5.5 **Modification of system of procurement incidentals**:

State Governments of Punjab and Haryana have pointed out in the meeting held in FCI Board Room on 15.6.2011 that the delay in settlement of claims is resulting in huge financial burden on the state agencies. There is, therefore, an urgent need to fix provisional procurement incidentals on a realistic basis.

18.5.6 **High Level Committee to suggest modification of procurement incidental:**

It is recommended that a High Level Committee consisting of Chief Advisor (Cost), GOI, an Ex-Chairman of CACP and ex-Union Food Secretary may be set up to study the details of fixation of incidentals. The Committee may give its report in six months time which may be accepted by the Government.

18.5.7 **Issues relating to taxation:**

Some State Governments have imposed high level of taxation on foodgrains. A statement showing the rate of taxes in RMS 2011-12 and KMS 2010-11 is at Annexure-I. Thus, the Central Government has to pay 14.5% tax to Government of Punjab for quantity of foodgrains for central pool.

18.5.8 In several states, the Taxation Department have been levying taxes and penalties on foodgrains procured by central pool. For example, In Orissa, the Taxation Department has interpreted that the sale price under TPDS and other welfare schemes should not be less than the average procurement price of the foodgrains in the state. Thus, they had assessed state VAT on the average purchase price instead of actual sale price which resulted in additional VAT demand of Rs.4.75 crores + 200% penalty i.e. 9.50 crores relating to the year 2005-06. The issue is yet to be resolved.

18.5.9 In view of substantial higher requirement of foodgrains under the proposed National Food Security Law, it is recommended that GOI may force all the State Governments to exempt MSP operations/TPDS from any taxation. This will also keep the price of foodgrains low in the open market.

18.6 Issues relating to release of food subsidy in FCI:

18.6.1 At present, even before implementation of the Food Security Act, the GOI is not providing adequate subsidy in the foodgrains allocated under TPDS and other welfare schemes. The total food subsidy in the GOI budget of 2011-12 for FCI is Rs.47, 239 crores against which the estimated food subsidy of FCI alone is about Rs.77,491 crores. Moreover, arrears of Rs.11,743 crores are payable to FCI on 1.4.2011. In addition, there is subsidy requirement for DCP states which are released directly by the GOI to the respective DCP states. After implementation of the Food Security Act, the actual food subsidy may reach about Rs. 1 lakh crores. Thus, it is a matter of concern how it would be possible for the GOI to provide such a huge subsidy in the Union Budget.