

## 1. **INTRODUCTION**

1.1 In the wake of consistent rise of rate of inflation during the first quarter of calendar year 2007 and responding to the concerns expressed at various fora and by various opinions including by Parliamentary Standing Committee of the Ministry of Consumer Affairs, Food and Public Distribution in its 17<sup>th</sup> Report, an Expert Committee was set up under the Chairmanship of Prof. Abhijit Sen, Member, Planning Commission to examine whether and to what extent futures trading has contributed to price rise in agricultural commodities. The terms of reference of the Committee are as follows:

- i) To study the extent of impact, if any, of futures trading on wholesale and retail prices of agricultural commodities;
- ii) Depending on (i), to suggest ways to minimize such an impact;
- iii) Make such other recommendations as the Committee may consider appropriate regarding increased association of farmers in the futures market/trading so that farmers are able to get the benefit of price discovery through Commodity Exchanges.

1.2 The constitution and terms of reference of the Committee are given in **Annexure-I**.

1.3 The Expert Committee met **seven** times and also met various individuals, dignitaries, heads/representatives of various government departments/agencies, commodity exchanges and various corporates and cooperatives. Presentations were also made by various institutions/organizations in response to the invitation of the Expert Committee. The list of Organisations/Institutions whose representatives met the Expert Committee is given in **Annexure-II**. The Committee has not only tried to find answers to the questions explicitly raised in the terms of reference, but also attempted to probe and address some of the reasons implicit in those concerns.

## **2. HISTORY**

2.1 The history of futures trading in commodities in India dates back to the later part of 19<sup>th</sup> century when the first commodity exchange, viz.. the Bombay Cotton Trade Association Ltd was set up for organizing futures trading. The early 20<sup>th</sup> century saw the mushrooming of a number of commodity Exchanges. The principal commodity markets functioning in pre-independence era were the cotton markets of Bombay, Karachi, Ahmedabad and Indore, the wheat markets of Bombay, Hapur, Karachi, Lyallpur, Amritsar, Okara and Calcutta; the groundnut markets of Madras and Bombay; the linseed markets of Bombay and Calcutta; Jute and Hessian markets of Calcutta; Bullion markets of Bombay, Calcutta, Delhi and Amritsar and sugar markets of Bombay, Calcutta, Kanpur and Muzaffarnagar. There were no uniform guidelines or regulations. These were essentially outcomes of needs of particular trade communities and were based on mutual trust and faith. They were regulated by social control of close-knit groups and whenever such control failed, there would be a crisis.

2.2 In order to provide constant vigil to prevent crisis, rather than combat these after they occurred, a comprehensive legislation was enacted by the Bombay State in 1947 in the form of the Bombay Forward Contracts Control Act. On adoption of the Constitution of the Republic, the subject, “Stock Exchanges and Futures Markets” was included in the Union List and a central legislation called Forward Contract (Regulation) Act 1952 was enacted which provided the legal framework for organizing forward trading in the country and provided, inter alia, for recognition of Exchanges. This framework continues to exist even today. One of the important features of this Act is to notify a commodity for prohibition or regulation of forward contract. Under these provisions, a large number of commodities were notified for prohibition during the 1960s which left only a handful of insignificant commodities open for forward trade. This scenario continued for about four decades although the Dantawala Committee(1966) and Khusro Committee (1980) had recommended steps to revive futures trading in more agriculture commodities.

2.3 Subsequent to liberalization of Indian economy in 1991, a series of steps were taken to liberalise the commodity forward markets. This found expression in many reports and studies of committees and groups to recommend reforms in commodity futures market. The Kabra Committee (1994), the earliest post-1991, recommended opening up of futures trading in 17 selected commodities, although it was not

unanimous regarding some of these. Importantly, this committee was unanimous in recommending that futures trading **not be resumed** in case of wheat, pulses, non-basmati rice, tea, coffee, dry chilli, maize, vanaspati and sugar. For most of these, it recommended that case by case reviews of suitability of each commodity be carried out in light of developments in the future. UNCTAD and World Bank joint Mission Report **“India: Managing Price Risk in India’s Liberalized Agriculture: Can Futures Market Help? (1996)** highlighted the role of futures markets as market based instruments for managing risks and suggested the strengthening of institutional capacity of the Regulator and the exchanges for efficient performance of these markets. This report also noted that government intervention was pervasive in some sensitive major commodities like wheat, rice and sugar and was of the view that future markets in these commodities were **unlikely to be viable** because of this. Another major policy statement, the **National Agricultural Policy, 2000**, also expressed support for commodity futures. **The Expert Committee on Strengthening and Developing Agricultural Marketing (Guru Committee: 2001)** emphasized the need for and role of futures trading in price risk management and in marketing of agricultural produce. This Committee’s Group on Forward and Futures Markets recommended that it should be left to interested exchanges to decide the appropriateness/usefulness of commencing futures trading in products (not necessarily of just commodities) based on concrete studies of feasibility on a case-to-case basis. It, however, noted that:

“All the commodities are not suited for futures trading. For a commodity to be suitable for futures trading it must possess the following characteristics:-

- i. The commodity should have a suitable demand and supply conditions i.e. volume and marketable surplus should be large.
- ii. Prices should be volatile to necessitate hedging through futures trading in this case persons with a spot market commitment face a price risk. As a result there would be a demand for hedging facilities.
- iii. The commodity should be free from substantial control from Govt. regulations (or other bodies) imposing restrictions on supply, distribution and prices of the commodity.
- iv. The commodity should be homogenous or, alternately it must be possible to specify a standard grade and to measure deviations from that grade. This condition is necessary for the futures exchange to deal in standardized contracts.
- v. The commodity should be storable. In the absence of this condition arbitrage would not be possible and there would be no relationship between spot and futures markets.”

### 3. GROWTH OF THE MARKET

3.1 The year 2003 is a watershed in the history of commodity futures market. The last group of 54 prohibited commodities was opened up for forward trading, along with establishment and recognition of three new national exchanges with on-line trading and professional management. Not only was prohibition on forward trading completely withdrawn, including in sensitive commodities such as wheat, rice, sugar and pulses which earlier committees had reservations about, the new exchanges brought capital, technology and innovation to the market. These markets notched up phenomenal growth in terms of number of products on offer, participants, spatial distribution and volume of trade. Starting with trade in 7 commodities till 1999, futures trading is now available in 95 commodities. There are more than 3000 members registered with the exchanges. More than 20,000 terminals spread over more than 800 towns/cities of the country provide access to trading platforms. The volume of trade has increased exponentially since 2003-04 to reach Rs. 36.77 lakh crore in 2006-07. Almost all of this (97.2%) of this is now accounted for by the three national exchanges. The other 21 Exchanges have a miniscule share in the total volume.

3.2 The growth in commodity futures trade has spawned an upsurge of interest in a number of associated fields, viz. research, education and training activities in commodity markets, commodity reporting for print and visual media, collateral management, commodity finance, ware-housing, assaying and certification, software development, electronic spot exchanges etc. Markets and fields almost non-existent four years ago now attract significant mind-share nationally and internationally.

**Table-1: Commodity Group-wise Value of Trade** (Rs. Lakh Crores)

Commodity Groups	2004-05	2005-06	2006-07	2007-08 (upto Jan. 2008)
Bullion and other metals	1.80 (31.47)	7.79 (36.15)	21.29 (57.90)	20.26 (64.09)
Agriculture	3.90 (68.18)	11.92 (55.31)	13.17 (35.82)	7.34 (23.22)
Energy	0.02 (0.35)	1.82 (8.45)	2.31 (6.28)	4.01 (12.69)
Others	0.00 (0.00)	0.02 (0.09)	0.001 (0.00)	0.0002 (0.00)
Total	5.72 (100.00)	21.55 (100.00)	36.77 (100.00)	31.61 (100.00)

Note: Figures in parenthesis indicate percentage to total value.

3.3 Futures contracts are available for major agricultural commodities, metals and energy. Commodity group-wise value of trading since 2004-05 is given in **Table-1**. Although agricultural commodities led the initial spurt, and constituted the largest proportion of the total value of trade till 2005-06 (55.32%), this place has been taken over by bullion and metals since 2006-07. The growth in 2006-07 was almost wholly (88.7%) accounted for by bullion and metals, with agricultural commodities contributing a small fraction (10.7%). This was partly due to the stringent regulations, like margins and open interest limits, imposed on agriculture commodities and the dampening of sentiments due to suspension of trade in few commodities. Futures market growth in 2006-07 appears to have bypassed agriculture commodities.

3.4 Moreover, there has been a very significant decline in volume of futures trade in agriculture commodities during the year 2007-08. The year is expected to record a decline of about 30% compared to 2006-07. The overwhelming bulk of this decline is accounted for by Chana, Maize, Mentha Oil, Guar seed, Potato, Guar Gum, Chillies and Cardamom. Trade in these eight commodities, which accounted for 57.9% of total futures trade in agricultural commodities in 2006-07, declined by over 72% during April-December 2007 compared to the corresponding period of the previous year. The decline in these eight commodities exceeded the decline of futures trading volumes in all agricultural commodities taken together.

3.5 Four commodities (wheat, rice, urad and tur) were de-listed for futures trading towards the end of financial year 2006-07. This de-listing has been held responsible in many circles for the recent general downturn in futures trading in agricultural commodities. But these four de-listed commodities together accounted for only 6.65% of the total value of futures trading in all agricultural commodities in 2006-07. Thus, although this may have affected market sentiments adversely, the delisting did not have any major direct contribution to the decline in trading observed during 2007-08.

3.6 In fact, except chana and urad, the share of sensitive commodities in total value of futures trade in agricultural commodities has so far been quite insignificant. The combined share of other foodgrains (i.e. wheat, rice, maize and tur) peaked at 5.0% in 2005-06 and of sugar at only 2.2%. This is in line with what various Committees mentioned earlier had foreseen regarding prospects of futures trading in commodities with significant government intervention. If, nonetheless, de-listing has adversely affected market sentiment regarding futures trading more generally, this must be because of the “go-stop” nature of government policy on the matter.

#### **4. FUTURES TRADE AND PRICE MOVEMENTS**

4.1 Overall year-on-year WPI inflation showed a consistent upward movement from mid-2006 to reach a high of 6.69% in the week ending 27<sup>th</sup> January, 2007. The 6% mark, last recorded in December 2004 (23.12.04), was breached in the first week of January (6.1.2007) after which it remained consistently above 6% for almost 3 months when it started softening in April 2007. Year-on-Year inflation as measured by the Consumer Price Indices (CPI-IW, CPI-AL, CPI-UNME) showed even larger rise, reaching 7.6%, 9.8% and 7.8% respectively in February 2007. None of the CPIs had recorded 6% inflation since 2001, but all crossed this mark by June 2006 and declined below this only after September 2007. This rise in inflation was generally attributed to price rise in agricultural commodities and, with agricultural GDP growth actually accelerating from 1.8% in 2001-05 to 4.9% during 2005-07, one of the causes for this was in turn attributed to greater price volatility following the opening up of futures trading in a large number of such commodities. Therefore, a two stage enquiry is needed: (i) to what extent was the 2006-07 inflation led by price rise in agricultural commodities, particularly food-grains; and (ii) whether inflation and price volatility in these commodities had increased following the introduction of futures trade.

#### **Contribution of Agricultural Commodities in WPI & CPI Inflation**

4.2 There are 12 'food grain' (cereals & pulses) items in the basket of WPI index, with 5.01% weight. Among these, Rice & Wheat have significant weight while weight of other items is individually small. Contribution of foodgrains to overall WPI inflation is determined by increase in WPI of these items and their weight in the overall WPI index. In January 2007, y-on-y inflation was very high for gram and urad (about 30%), high for wheat (14%) but quite low for rice (4.7%). WPI "foodgrains" inflation averaged 10.85%. This was higher than the broader group "Primary Food Articles" (9.52%) and much higher than overall WPI inflation (6.37%). Consequently the contribution of 'Food grains' in WPI inflation in January 2007 was, at 8.34%, significantly more than their weight in the index. But, nonetheless, the magnitude of this contribution was small because of low weight of foodgrains in WPI.

4.3 The weight of food items, particularly of foodgrains, is much higher in the Consumer Price Indices. The CPI-AL assigns weight of 69.15% to food items, of which the weight of cereals is 40.94% and pulses 3.39%. While overall CPI-AL rose 9.8% y-on-y in February 2007, the food component rose 11.8%, so that contribution of food was as high as 83.4%. The CPI-IW assigns weight of 57% to food, of which

20.47% is on cereals and 3.59% on pulses. The food index increased 12.2% y-on-y to February 2007 as against 7.6% increase in overall CPI-IW, implying a contribution of 74%. Of the three available consumer price indices, CPI-UNME assigns the lowest weight to food (45.61%) and to food grains (10.97% to cereals and 2.51% to pulses). But even so, the contribution of food to y-on-y inflation to February 2007 was as high as 67% since the food component increased 11.5% against 7.8% rise in the overall index. Even excluding perishable items (fruits, milk, meat, egg and fish), contribution was 48.6%, with foodgrains alone contributing 20.2% and with sizeable contributions also by edible oils and condiments & spices which are traded in futures markets.

4.4 Clearly, food and foodgrains inflation during the period considered was significantly higher than overall inflation by all price indices. But their contribution to inflation varies widely depending on weights assigned, being highest in CPI-AL which is pertinent for the poor and lowest in the WPI. In particular, the contribution of foodgrains to overall WPI inflation is relatively small and much less than to CPI inflation. This is because, unlike the CPIs, the WPI also includes intermediate and capital goods which do not enter directly into consumption. However, because of this, the WPI permits a wider look at agricultural goods since many of these do not directly enter the food basket but are used as intermediates.

4.5 There are 87 processed and non-processed agricultural commodities in the WPI basket accounting for a combined weight of 25.65%. Of these 66 are primary agricultural commodities and 21 are processed commodities. If we examine the contribution of these 87 commodities in the WPI inflation during January, 2007 when y-o-y inflation was 6.37%, their contribution was 31.54% against their weight of 25.65% in WPI basket. This was 1.23 times their weight in WPI which indicates more than proportionate contribution in inflation.

4.6 Thus, as in case of food, considering all agricultural commodities shows higher inflation than overall WPI inflation. But, although this supports the view that the inflation in early 2007 was led by agricultural commodities, it is not possible to conclude that factors particular to these commodities were the only, or even major, reason behind the spurt in inflation. This is because manufactured products (with weight of 63.75% in WPI) also recorded inflation of around 6%. While some of this could be accounted for by cost-push from agriculture, other factors such as demand consequences of high growth in GDP and in money supply cannot be ruled out.

### **Price Rise in Agricultural Commodities.**

4.7 Notwithstanding that the contribution of agricultural commodities, particularly 'food grains', in WPI inflation was small due to relatively low weight, it is a fact that there was a significant upsurge in prices of some of the agri-commodities from the middle of 2006 to the first quarter of 2007. In view of their headline implications as also their impact on the poor, this deserves in-depth examination and monitoring.

4.8 In order to examine whether futures trade could have led to price rise in agricultural commodities, we have relied on WPI data as these are a closer proxy of producer prices of agricultural produce than retail prices. Of the 43 agricultural commodities that have futures trading, 24 commodities accounted for 98.7% of total value of futures trading of agricultural commodities in 2006-07. A list of these commodities along with the volume and value of trade in the year 2006-07 is given in **Table-2A**. It will be seen from **Table-2A** that, not only do these 24 commodities account for almost the entire volume of futures trading in agricultural commodities, just the top eight commodities account for about 84% of the total value of trade.

4.9 However, among these 24 commodities with preponderant share in volume of futures trade, 3 do not feature in the WPI basket at all. Guar seed, Guar gum and Mentha oil having a share of 29.6% in value of total future trading in agricultural commodities are significant omissions in the WPI basket, and could not be used in the price analysis. This shows that a very significant share of futures trading in agricultural commodities is accounted for by commodities that are insignificant for the overall price level in the economy. Indeed, even the remaining 21 commodities, with weight of nearly 70% in agricultural futures trade, have a weight of only 11.73% in the total WPI basket and account for less than half of the weight of the 87 processed and unprocessed agricultural commodities that are included in the WPI.

4.10 A mapping was done of these 21 commodities with regard to the events of futures trade in these. It was observed that reasonable degrees of liquidity in most of these commodities came much after they were notified for futures trading. For some commodities, even after some liquidity was observed, this did not grow or stabilize continuously thereafter. After arriving at the month of the year when reasonable liquidity in trade in a specific commodity was gained, the WPI data was divided into two sub-sets of pre and post futures period having equal observations for that commodity. The month from which reasonable volume of futures trade was attained in the commodity is given as Statement X.

**Table 2A: Volume & Value of Trading in Major Agri-commodities (2004-05 to 2006-07)**

(Volume of Trading – in Lakh Tonnes, Value - in Rs. Crores)

Sl. No	Name of the Commodity	2004-2005		2005-2006		2006-2007		2007-08(upto Dec'07)	
		Volume	Value	Volume	Value	Volume	Value	Volume	Value
<b>I</b>	<b>Agricultural Commodities</b>								
	<b>Major Agricultural Commodities</b>								
1	Guar seed	799.10	129522.98	1902.04	330439.50	1609.96	324881.42	509.966	92689.662
2	Chana/Gram	108.42	16754.59	1240.27	234774.10	1191.99	306794.19	254.903	59559.894
3	Soy Oil	249.58	101527.66	297.69	110229.65	401.51	176667.56	309.048	154248.727
4	Pepper	11.63	8334.28	11.56	8029.83	76.26	90727.61	660.544	88132.252
5	Jeera (Cumin seed)	3.61	2945.06	17.77	11822.97	69.15	67476.78	50.710	62804.278
6	Urad	65.23	10277.49	769.81	196904.49	164.65	53546.13	--	--
7	Mentha Oil	0.00	0.00	6.66	41533.49	8.56	52103.60	1.501	8015.061
8	Chillis	0.23	60.50	24.28	7487.16	71.87	38651.43	23.483	11456.581
9	Soy seed	74.48	9797.15	111.53	13859.67	189.16	26238.80	201.0662	33895.276
10	Mustard Seed	107.42	19464.35	94.93	16631.52	114.61	22332.37	240.1423	54242.93
11	Wheat	36.95	2839.31	194.26	15970.18	235.07	22179.56	0.154	15.017
12	Potato	0.00	0.00	8.01	579.17	256.53	15004.25	74.571	4659.123
13	Turmeric	4.49	1111.09	15.97	3943.46	65.00	14817.62	69.4524	15763.495
14	Castor seed	82.21	14327.34	73.17	11713.12	80.75	14638.78	57.13522	11889.998
15	Sugar	41.01	7737.30	139.99	26759.68	75.34	13690.22	125.69.39	16402.625
16	Guar Gum	28.83	13412.08	79.67	36986.05	25.88	13132.09	8.336	3791.766
17	Gur	68.14	7891.49	107.08	16441.32	81.84	11052.30	40.66873	5027.47
18	Tur	0.37	60.47	231.19	41548.02	53.91	10697.27	---	---
19	Kapas	192.05	33317.12	182.78	30808.44	42.28	8256.56	19.88012	4402.849
20	Rubber	4.80	2744.71	7.05	4830.48	8.45	8166.79	4.759	4222.308
21	Cardamom	0.12	420.56	0.11	292.72	1.64	7427.29	0.541	2741.090
22	Maize	2.03	109.69	16.98	927.23	65.19	4921.02	414.240	1063.755
23	Raw jute	28.71	3747.53	39.07	5471.97	10.66	1426.49	13.8339	1818.964
24	Rice	2.40	396.71	9.33	1471.05	2.36	456.03	--	--
(A)	<b>Total of Above</b>	<b>1911.80</b>	<b>386799.46</b>	<b>5581.20</b>	<b>1169455.27</b>	<b>4902.62</b>	<b>1305286.16</b>	<b>2080.628</b>	<b>636843.121</b>
(B)	<b>Other Agri-Commodities</b>	27.58	3388.90	237.60	22771.60	121.30	11839.05	<b>105.468</b>	<b>9020.525</b>
(A+ B)	<b>Total Agri-Commodities</b>	<b>1939.38</b>	<b>390188.4</b>	<b>5818.8</b>	<b>1192226.9</b>	<b>5023.92</b>	<b>1317125.21</b>	<b>2186.096</b>	<b>645863.646</b>
<b>II</b>	<b>Bullion &amp; Metals</b>	2.72	179671.1	58.45	779398.35	190.88	2128985.18	<b>334.618</b>	<b>1718172.744</b>
<b>III</b>	<b>Energy</b>	0	1900.14	908.96	181882.64	914.34	230711.92	<b>1467.404</b>	<b>352845.285</b>
<b>IV</b>	<b>Plastics</b>	0	0	2.505	1614.16	0.15	104.36	<b>0.044</b>	<b>19.395</b>
	<b>Grant Total (I to IV)</b>	<b>1942.1</b>	<b>571759.6</b>	<b>6788.71</b>	<b>2155122</b>	<b>6129.29</b>	<b>3676926.67</b>	<b>3988.162</b>	<b>2716901.066</b>

NB: Shaded Figures indicate highest value during the period of three years 2004 -05 to 2006-07

**Table 2.B: Annualized Trend Growth Rate and Volatility of WPI of Selected Agricultural Commodities in which Futures are traded**

Sl. No.	Name of the Commodity	WPI Weights (1993-94)	Monthly Data				Weekly Data			
			WPI Trend Growth Rate (%)		WPI Volatility (%)		WPI Trend Growth Rate (%)		WPI Volatility (%)	
			Pre-Futures	Post-Futures	Pre-Futures	Post-Futures	Pre-Futures	Post-Futures	Pre-Futures	Post-Futures
1	Guar Seed	--	--	--	--	--	--	--	--	--
2	Chana/Gram	0.223650	-9.2	20.9	10.6	11.3	-9.1	20.8	9.2	9.7
3	Soy Oil	0.178380	21.8	-1.6	14.1	6.1	21.4	-0.9	17.0	7.0
4	Pepper	0.022920	-22.5	8.9	27.4	30.9	-22.3	9.0	26.1	30.6
5	Jeera / Cumin Seed	0.102880	-5.0	8.1	12.9	16.1	-5.0	8.8	17.7	17.7
6	Urad	0.096190	-7.9	32.9	9.0	15.7	-7.7	32.7	10.9	18.4
7	Mentha Oil	--	--	--	--	--	--	--	--	--
8	Chillies	0.188660	-16.4	42.9	15.0	17.1	-16.3	42.3	15.1	21.5
9	Soybean/ Soy Seed	0.446140	12.2	-11.3	15.1	21.5	12.1	-11.4	3.6	4.0
10	Rape Seed / Mustard Seed	0.580660	18.3	0.1	12.6	9.4	18.2	0.2	11.5	8.6
11	Wheat	1.384080	2.3	9.6	5.3	7.3	2.3	9.5	4.9	6.1
12	Potato	0.256470	28.9	11.7	49.6	47.5	29.0	11.3	44.8	41.5
13	Turmeric	0.076500	20.2	-8.2	13.7	8.5	20.2	-8.2	18.5	16.6
14	Castor Seed	0.085720	2.5	-2.2	13.5	12.7	2.4	-1.5	21.0	14.0
15	Sugar	3.618830	1.2	3.2	7.7	7.6	1.3	3.0	5.9	6.0
16	Guar Gum	--	--	--	--	--	--	--	--	--
17	Gur	0.059790	25.4	-0.6	9.6	11.6	21.6	-0.6	17.0	12.0
18	Tur / Arhar	0.134660	2.8	5.8	9.0	7.7	2.9	5.8	9.1	10.0
19	Raw Cotton / Kapas	1.356740	-21.7	5.2	12.9	10.6	-21.4	5.2	9.5	15.9
20	Rubber	0.150800	10.5	20.1	16.0	21.1	10.4	19.9	16.5	21.0
21	Cardamom	0.024940	-20.3	4.6	11.7	19.5	-20.2	4.7	25.7	29.9
22	Maize	0.185010	-2.4	9.6	11.4	6.8	-2.3	9.7	10.4	9.2
23	Raw Jute	0.108680	-11.4	10.8	13.4	13.6	-11.3	10.7	17.5	13.9
24	Rice	2.449070	-0.4	3.0	3.6	2.5	-0.4	2.9	3.1	2.3
<b>Total above (21 Commodities)</b>		<b>11.730770</b>	<b>4.15</b>	<b>5.05</b>	<b>3.95</b>	<b>3.57</b>	<b>4.18</b>	<b>5.04</b>	<b>3.22</b>	<b>3.29</b>
<b>Primary Agricultural Products (Food &amp; Non-food articles)</b>		<b>21.54</b>	<b>4.19</b>	<b>4.99</b>	<b>3.64</b>	<b>4.49</b>	<b>4.16</b>	<b>4.99</b>	<b>4.07</b>	<b>4.27</b>
<b>All Agricultural Commodities including Processed</b>		<b>25.397</b>	<b>3.92</b>	<b>4.74</b>	<b>3.32</b>	<b>3.91</b>	<b>3.91</b>	<b>4.73</b>	<b>3.67</b>	<b>3.83</b>
<b>CPI – IW</b>			<b>3.51</b>	<b>5.50</b>	<b>1.80</b>	<b>2.21</b>				
<b>CPI – AL</b>			<b>3.14</b>	<b>6.20</b>	<b>1.74</b>	<b>2.77</b>				
<b>CPI – UNME</b>			<b>3.44</b>	<b>5.70</b>	<b>1.51</b>	<b>1.69</b>				

Note: -- Not in WPI basket

## **Analysis of Price Data**

4.11 Trend growth of WPI and its volatility for pre and post futures period of these 21 agricultural commodities are presented in Table No.2B. Both monthly and weekly WPI data have been used for analysis and the rates have been annualized.

### **Inflation**

4.12 Both monthly and weekly data show that the annual trend growth rate in prices was higher in the post-futures period in 14 commodities, viz. Chana, Pepper, Jeera, Urad, Chillies, Wheat, Sugar, Tur, Raw Cotton, Rubber, Cardamom, Maize, Raw Jute and Rice; and lower in 7 commodities, viz. Soy oil, Soy bean, Rape seed / Mustard seed, Potato, Turmeric, Castor seed, and Gur. The first set of commodities account for 48.2% of futures trading volume in agriculture and have a weight of 10.1% in the WPI. Corresponding figures for the second set are 21.3% and 1.7%. Since the number of commodities in which inflation accelerated is double the number in which this decelerated, and their weights are also much higher in both futures trading and in the WPI, there is some support for the claim that opening up of futures markets spurred inflation. Also, significantly, all sensitive commodities (i.e. food grains and sugar) recorded some acceleration in inflation after the start of futures trading.

4.13 However, a revealing feature of this data is that of the 14 commodities in which acceleration took place in post-futures period, 10 had suffered negative inflation during the pre-futures period. It is possible in such cases that the acceleration in growth rate of WPI in these commodities is simply rebound and catch-up with the trend, which in turn could have been aided by more efficient price discovery. Similarly, of the 7 commodities in which WPI growth was lower post-futures, 6 had unusually high pre-futures inflation at over 10%. In these cases, too, it is possible that what is being observed is simply reversion to a more normal level of inflation. In both cases, there is the problem that the period during which futures markets have been in operation is much too short to discriminate adequately between the effect of opening up futures markets and what might simply be normal cyclical adjustments.

4.14 Nonetheless, some discrimination is possible if acceleration/deceleration is assessed requiring: (i) that the change in growth rate following introduction of futures was by some minimum amount (say 5 percentage points); and rule out cases of catch-up or reversion to normal inflation by also requiring: (ii) that, following the change, the growth rate averaged over both before and after was above/below some normal

inflation range (say 0 to 5%). By this criterion, no commodity shows deceleration and five, Chana, Chillies, Urad, Wheat and Rubber, show clearer evidence that inflation did accelerate following introduction of futures. These 5 commodities account for 32% of total value of futures trading in agricultural commodities but have a weight of only 1.9% in WPI. However, importantly, three of these five are food grains and include two of the four commodities that were de-listed in early 2007.

4.15 An analysis was also carried out at macro rather than specific commodity level taking August 2004 as the cut-off point to divide pre-futures and post-futures periods. This is the middle month of the second quarter (July-Sept) of 2004-05 when, taking acceleration in total futures trading volume as the barometer, such trading picked up reasonably. After taking equal observations for both pre and post futures period, trend growth rates for both periods were calculated. This was done for (i) the weighted average WPI of the 21 selected commodities that have significant futures trading, (ii) all primary agricultural goods (i.e. Food and Non-Food Articles in the WPI Primary Articles Group) and (iii) the weighted composite index of the 87 processed and unprocessed agricultural commodities. This was also done for the three retail Consumer Price Indices, i.e. CPI-IW, CPI-AL & CPI-UNME. It may be seen that not only did inflation accelerate post-futures in every case; price volatility was also generally higher in the post-futures period.

4.16 The observed acceleration is quite high at 3 percentage points for CPI-AL, moderate at around 2 percentage points for CPI-IW and CPI-UNME, but low at less than 1 percentage point in case of all three indices derived from WPI. Moreover, the composite WPI index of the 21 selected commodities with futures trading did not accelerate more than WPI for all agricultural commodities. Thus, although inflation clearly increased post-futures in some sensitive commodities that have higher weight in consumer prices indices, it is not possible to make any general claim that inflation accelerated more in commodities with futures trading. Similarly, although price volatility appears to have increased post-futures by these macro indices, this is less true of the composite index of these 21 traded commodities than of other indices.

### **Volatility**

4.17 Price volatility (i.e. extent of price fluctuations around trend) is important because reduction in this, along with better price discovery, is the main benefit expected from futures trading. Indeed, NCDEX, the leading exchange for futures trade in agricultural commodities, has presented the Committee with analysis of daily

spot price volatility of commodities for which it offers futures contracts, arguing that such volatility has reduced significantly. **Table-3** gives details of daily volatility from NCDEX. This is available for 19 of the 24 traded commodities selected earlier, and it may be seen that volatility was lower in 15 commodities during the post-futures period, higher in 3 commodities and remained same in one. If 25% change either way is taken as a confidence band, daily price volatility did not increase in any commodity and declined in 13 commodities, accounting for 41.9% of volume of agri-commodity futures trading and with 3.7% weight in WPI. These weights are however somewhat less than corresponding weights (51.2% and 4.0%) for the remaining 6 commodities where changes in daily price volatility fall within the confidence band.

**Table-3: Daily Volatility Analysis** (Percentage)

S. No.	Name of the Commodities	Pre-futures	Post-futures	No of obs Pre-futures	No of obs Post-futures
1.	Potatoes	245.9	68.4	441	441
2.	Turmeric	90.7	15.3	643	792
3.	Chilly	78.5	43.9	430	430
4.	Jeera	47.7	13.8	665	665
5.	Wheat	43.6	17	814	814
6.	RM seed	26.5	11.4	938	938
7.	Maize	29.6	14.6	689	689
8.	Urad	36.7	25	312	753
9.	Soybean	27.5	16	792	792
10.	Pepper	28.2	17.8	970	970
11.	Guar seed	38.5	28.9	895	895
12.	Soybean oil	18.1	9.7	939	939
13.	Gur	27.7	19.5	689	689
14.	Rubber	24	17.5	574	1062
15.	Sugar	10.8	8.2	818	818
16.	Chana	22.6	22.6	815	895
17.	Castor seed	16.9	17	796	1011
18.	Raw Jute	12.9	16	689	689
19.	Guar gum	40.3	43.4	824	824
20.	Kapas	NA	18.5	NA	84
21.	Tur	NA	23.5	NA	547
22.	Cardamom	NT	NT		
23.	Rice	NA*	NA*		
24.	Mentha Oil	NR	NR		

Source: NCDEX

Number of observations in pre- and post-futures would be different on account of non-availability of data in the pre-futures period.

NA: not available

NT: not traded on NCDEX

NA\*: Contracts have been changed for rice and not continuous

NR: not reported

4.18 However, the impressive volatility decline claimed from NCDEX daily price data is not found from WPI data for the 21 selected commodities used in Table 2B. This shows weekly and monthly price volatility increasing in 10 commodities after introduction of futures trading, remaining unchanged in two, and declining in 9. Also, cases of volatility increase were more among commodities that rank high by volume of futures trading, so that volatility increased in commodities accounting for about 50% of agricultural futures trade, and declined in commodities accounting for only around 20% of such trade. This is so by both weekly and monthly WPI data although some commodities, Raw Cotton, Raw Jute, Tur and Gur show opposite directional change in monthly and weekly price volatility (see cross-tabulation in Table 4).

**Table 4 – Cross Tabulation for monthly and weekly data on the basis of volatility**  
(No. of commodities)

Monthly Data	Weekly Data				Total
		Rise	Same	Fall	
Rise		8	1	1	10
Same		--	1	1	2
Fall		2	-	7	9
Total		10	2	9	21

4.19 Given these conflicting results from daily as against weekly and monthly data, no strong conclusion can be drawn on whether introduction of futures trade is associated with decrease or increase in spot price volatility. Daily, weekly and monthly volatility all declined in five cases (Soy Oil, Rape/Mustard Seed, Turmeric, Potato and Maize) but these account for only 17.3% of agricultural futures trading and 1.3% of WPI. With the exception of maize, these are all cases where pre-futures inflation was high and decelerated subsequently. In fact, if WPI monthly data are considered, the expected reduction of volatility following introduction of futures trading was largely limited to those commodities where inflation decelerated. A cross-tabulation (Table 5) of number of commodities by changes in inflation (trend growth rate) and monthly volatility shows that volatility declined in 5 of the 7 commodities where inflation decelerated in post-futures period. On the other hand, monthly volatility reduced in only 4 out of the 14 commodities where inflation accelerated. In particular, volatility *increased* by both weekly and monthly WPI data, though not on basis of NCDEX daily data, in all the five cases (Chana, Chillies, Urad, Wheat and Rubber) which were identified earlier as those where inflation did accelerate significantly after introduction of futures.

**Table-5: Cross Tabulation of post-future Trend Growth Rate and volatility (Monthly data)** (No. of commodities)

Volatility/ Trend Growth	Higher	Same	Lower	Total
Accelerated	8	2	4	14
No Change	--	--	--	--
Decelerated	2	--	5	7
Total	10	2	9	21

4.20 In this context of different results by daily and monthly volatility it should be noted that, since clearing takes place on a daily basis, monitoring daily volatility is not only preferable but also necessary for purposes of futures market operations and day-to-day management of credit risk. However, what concerns farmers more is volatility relating to the relatively longer periods that separate sowing, harvesting and sale. If farmers are to gain from futures trading without participating in such trading directly, a necessary condition is that such trading should reduce, through price discovery and arbitrage, the ratio between the highest and lowest (i.e. harvest) price observed during a crop year. But in several cases (i.e. Chana, Chillies, Urad and Wheat; see Table 6) this ratio *increased* after introduction of futures trading, returning partially towards normal levels only after inflation subsided in 2007. This pattern not only helps to explain differences between changes in monthly and daily volatilities, but is also indicative of the limited efficiency of futures markets as they currently function. Although no general or definitive association can be claimed between introduction of futures and spot price volatility, this evidence suggests that farmers who normally sell at harvest gained much less than proportionately, compared to those who trade post-harvest, even in case of crops whose prices did clearly increase more subsequent to introduction of futures trading.

**Table - 6: Ratio of Highest to Lowest Monthly WPI during year**

	2001	2002	2003	2004	2005	2006	2007
Wheat	1.03	1.04	1.07	1.08	1.09	1.17	1.08
Urad	1.17	1.10	1.08	1.09	1.42	1.44	1.34
Chana	1.27	1.19	1.05	1.03	1.27	1.42	1.14
Chillies	1.09	1.13	1.22	1.44	1.28	1.63	1.22
Raw Rubber	1.32	1.23	1.20	1.26	1.33	1.41	1.22

## **Findings from IIMB and some other studies**

4.21 FMC had commissioned a study by the Indian Institute of Management, Bangalore (IIMB) to study the impact of Futures Trading in some important agricultural commodities. This and some other recent academic studies have been considered in detail by the Committee in view of the evidence above that inflation did increase in some commodities after introduction of futures trading and that spot price volatility did not decline as unambiguously as claimed by the Commodity Exchanges. Going beyond “before and after futures” comparisons of changes in trend growth of spot prices and their variability, these studies attempt to examine how spot price movements are related to futures markets activity and outcomes, and also to assess the efficiency of futures markets regarding price discovery and risk management.

4.22 The summary findings of the draft Report of IIMB are in **Appendix-I**. Only those commodities in which future trading had attained reasonable volume were chosen for study. These commodities are: gram, sugar, guarseed, wheat, urad and tur. The first conclusion of this study is that all these crops, except sugar, witnessed higher price increase in the post-exchange period compared to the pre-exchange period. However, as the study notes, sugarcane prices are to a large extent controlled by government and sugar prices play little role in determining the sugarcane prices, though they affect the payment capacity of the sugar mills and the prices to be offered for the next year. In case of guar grown mainly in the arid regions of Rajasthan, a normal monsoon gives a production that would meet the demand of guar seed for two to three years. The price increase in the year 2005-06 followed low carry-over stocks and increased export demand. In case of wheat, the high increase in prices after 2005 followed low production and low stock availability with the government. Tur showed a sharp increase in prices during 2006 following low stocks and production. Urad also showed continuous production decline 2004 onwards and a rise in the prices. Changes in fundamentals (mainly from the supply side) were thus found important in causing the higher post-futures price rise, with government policies also contributing, and the role of futures trading remains unclear.

4.23 Other recent studies come to similar conclusions. For example, Nath and Lingareddy (2008)<sup>1</sup> find that both average price change and spot price volatility of urad, gram and wheat were higher by statistically significant margins during October

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<sup>1</sup> Nath, G.C. and T. Lingareddy (2008): “Commodity Derivative Market and its Impact on Spot Market”, Available at SSRN: <http://ssrn.com/abstract=1087904>

2004 to January 2007 as compared to either the pre-futures period January 2001 to September 2004 or during February 2007 to October 2007 when futures trading in some of these commodities was suspended. They also report tests of causality that show that the volume of futures trading had positive and significant causal impact on both the average level of spot prices and their volatility in case of wheat and urad though not in case of gram. Nonetheless, since some other tests were inconclusive, they concluded that while futures trading did lead to increase in urad prices there was ambiguity in case of wheat, probably because of fall in supply.

4.24 The IIMB study also finds that spot price volatility increased after introduction of futures in case of wheat and urad. However, it does not find any major change in volatility for gram, excepting an abnormal rise in FY 2006-07, or for tur and sugar. In case of guar seed, volatility was in fact found lower after introduction of futures trade. In an interesting extension to this, the study found evidence that (i) increased spot price volatility (especially for wheat but also of gram) was associated with an increase in seasonality of prices so that farmers gained less than traders; and (ii) a tendency for retail margins to increase so that volatility increase was even more for retail prices than wholesale prices. In case of sugar also, although volatility of spot wholesale prices did not increase with introduction of futures, retail price volatility did increase.

4.25 These somewhat mixed results from the IIMB study on spot price volatility after introduction of futures trading fit better with the results reported earlier using WPI and CPI data than with claims of a general significant reduction in price volatility made by the Exchanges. In another study, covering wheat, sugar, turmeric, raw cotton, raw jute and soybean oil, Sahi (2006)<sup>2</sup> found that while the nature of spot price variability may not have changed significantly with onset of futures trading<sup>3</sup>, certain findings were consistent with destabilizing effect of futures trading on agricultural commodity markets. For example, unexpected increases in futures trading volumes were found to have a significant unidirectional causal effect increasing spot price volatility in all these commodities except raw cotton. Similarly, a causal effect

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<sup>2</sup> Sahi, Gurpreet S. (2006): "Influence of Commodity Derivatives on Volatility of Underlying" (2006)". Available at SSRN:<http://ssrn.com/abstract=953594>

<sup>3</sup> In fact, earlier studies had indicated that introduction of futures trading had reduced spot price variability for two of these commodities. See Singh, Jatinder Bir (2000): "Futures Markets and Price Stabilization: Evidence from Indian Hessian Market", <http://www.sasnet.lu.se/EASASpapers/8JatinderSingh.pdf>; and Nitesh Ranjan (2005): "Role Of Commodity Exchanges, Futures & Options - A Case Study On Soya Oil", Occasional paper 46, Department of Economic Analysis and Research, NABARD

was found from unexpected increase in open interest to increased spot price volatility for all these commodities except raw cotton and sugar. Although apparently contrary to the usual view that more liquidity should reduce volatility, these results are in line with the lead-lag relationship between futures trading activity and spot price volatility found recently for most major agricultural commodities in United States by Yang et.al. (2005)<sup>4</sup>. In the Indian context too, this obtains support from the subsequent study by Nath-Lingareddy already referred to. Such evidence relating to *unexpected* changes in futures markets growth over a rather short period of time do not constitute a case against orderly growth of futures markets. But it does suggest that speculative activity in futures markets *can* destabilize spot prices and therefore warns against aggressive attempts to expand futures trading, especially if driven not by those who manage price risks in physical trade by hedging in futures markets but by speculators or others based on exaggerated claims regarding futures markets efficacy.

4.26 Given this, an important finding of the IIMB study is that many contracts traded on Indian Commodity Exchanges do not satisfy a fairly minimal condition for these to be attractive for hedging by those holding physical commodities. A generally accepted measure of whether a futures contract is attractive for hedging is its *basis risk*. Here *basis* is defined as the observed difference between spot and futures prices, and basis risk is measured by variance of this basis. Hedging can reduce price risks of commodity holding if basis risk is less than price risk (i.e. variance of spot prices), and becomes more attractive the lower the basis risk. The IIMB study found that not only was basis risk high for commodities studied, this was higher than price risk for many contracts. Only in case of tur was basis risk less than price risk in all contracts studied, while in case of wheat, sugar and urad desi, basis risk was higher than price risk for majority of contracts. Similarly, Lokare (2007)<sup>5</sup>, reports basis risk exceeding price risk in majority of contracts for gur, potato, rubber, cotton, mustard and wheat. This is important since with Indian Commodity Exchanges offering so many contracts that are not suited for hedging by holders of physical commodities, not only are these contracts likely to be ineffective in being able to transfer price risk between those holding commodities and others, the Exchanges themselves are prone to being dominated more by purely speculative activity.

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<sup>4</sup> Yang Jian, Brian Balyeat R and David J. Leatham (2005): “Futures Trading Activity and Commodity Cash Price Volatility”, *Journal of Business Finance Accounting*, Vol 32, Nos 1 & 2, pp. 297-323

<sup>5</sup> Lokare, S.M.: “Commodity Derivatives and Price Risk Management: An Empirical Anecdote from India”, Reserve Bank of India Occasional Papers, Monsoon 2007

4.26 Besides low basis risk, efficiency of futures markets requires: (i) that spot and futures prices should be co-integrated (i.e. have a long-run equilibrium relationship which ensures that they do not diverge beyond bound); and (ii) that futures prices should be unbiased predictors of future spot prices except for reasonable risk premium (i.e. futures and spot prices should tend to move proportionately, with the basis having a stable time profile). Since exchanges and the regulator are now usually successful in ensuring that futures and spot prices converge at end of every contract, co-integration is generally observed although not necessarily for all months. In this sense, as Lokare (2007) notes, “markets are marching in the right direction of achieving improved operational efficiency, albeit, at a slower pace”.

4.27 However, matters are less reassuring on whether futures prices in India satisfy requirement (ii), which is the really critical issue if futures trading is to serve the goal of price discovery and risk management. For example, requirement (ii) implies that variances of spot and futures prices should be equal. But Lokare who tests for this, reports results that show that the only commodities where most contracts satisfied this were pepper and rice. For all other commodities, either the variance of spot price is much larger than that of futures (gur, potato, sugar and sacking) implying low efficiency of futures in price discovery; or variance of futures price is much higher than of spot (rubber and wheat) implying too much speculation in futures markets; or a mix of both these extremes (castor seed, cotton and mustard). The IIMB study uses an Index of Market connection to study the integration between spot and futures prices and likelihood of price discovery, supplementing this with an analysis of volatility transmission across the two markets. Although it finds some evidence for volatility transmission, it reports very poor integration of the two markets in all the commodities studied and therefore concludes that “futures may not have served the purpose of the risk management”.

4.28 Despite these rather negative results on functioning of futures markets, the IIMB study does highlight one very significant positive development following the recent growth of modern Exchanges. It notes that the growth of these Exchanges appears to have helped in integrating geographically separated markets and that this may be due to the fact that they may be playing the role of reference markets. In the case of chana, sugar, wheat and tur there is improvement in correlation between weekly price changes in different wholesale and retail markets in the Post Exchange period. In fact, apart from noting a reduction in the spot price volatility in case of guar seed, this is the only significant positive observation that the study has made of the situation after the introduction of futures markets.

### **Underlying fundamentals and price behaviour: the delisting experience**

4.29 However, although inflation in certain sensitive commodities did accelerate after introduction of futures trading and appear to have benefited traders more than farmers, it does not necessarily follow that introduction of futures trading was the causative factor. The price discovery expected from futures trading should ideally lead to better utilization of available information regarding how supply and demand conditions are likely to evolve; and arbitrage, through speculation and hedging, should ideally affect spot prices only to the extent of bringing these in line with evolving fundamentals and the cost of holding physical stocks. Commodity Exchanges have argued before the Committee that the de-listing of certain commodities from futures trade in early 2007 was ill-informed, since futures prices of these commodities were only reflecting underlying fundamentals.

4.30 Futures trading in 'urad' and 'tur', which were quite liquid on NCDEX platform, were de-listed on 23<sup>rd</sup> January, 2007. On date of delisting 4 deliveries month contracts, February, March, April and May 2007 were running. The 'urad' futures prices as on 23<sup>rd</sup> January 2007 were in backwardation, predicting a future fall in spot prices (Table 6). In fact, spot prices did fall after de-listing from Rs. 3551 on 23<sup>rd</sup> January 2007 to Rs. 2553 on 4<sup>th</sup> August 2007. As regards 'tur', except the February 2007 contract, futures prices at time of de-listing were in contango predicting rise in spot prices. In fact, spot prices continued their upward trend even after de-listing.

4.31 In case of wheat and rice no new trades were allowed post 27-2-2007. Only offsetting contracts of existing open interest were allowed. However, although listed on National exchanges, rice was hardly traded. As regards wheat it was liquid on NCDEX prior to 27<sup>th</sup> February 2007, when seven contracts viz., March, April, May, June, July, August & September 2007 were running. Data in Table 7 shows that futures prices in all these contracts were in backwardation at the point of de-listing, with extent of backwardation lower in further contracts, indicating that spot prices were predicted to fall on arrival of new harvest in April-May and rise moderately thereafter. The post de-listing spot prices recorded by the NCDEX shows that after a brief decline in prices in post harvest period of April and May prices started firming up to above Rs.1000 per quintal in July and August even though there were no new futures trade in this commodity.

TABLE 6 : PRICES OF URAD & TUR

A. Urad

Rs .per 100 kg.

Date	SPOT & FUTURES PRICES AT NCDEX						WPI (93-94'=100)*
	SPOT	FUTURES CLOSING PRICES FOR CONTRACT EXPIRING ON					
		20-Feb-07	20-Mar-07	20-Apr-07	18-May-07	20-Jun-07	
23-Jan-07	3550.70	3234.00	3145.00	3005.00	2939.00	2905.00	393.5 (20/1/07)
23-Feb-07	3202.70						398.9 (24/2/07)
23-Mar-07	3235.00						381.97(24/3/07)
23-Apr-07	3060.00						380.0 (21/4/07)
23-May-07	2575.00						360.4 (26/5/07)
23-Jun-07	2742.65						363.7(23/6/07)
23-Jul-07	2700.00						362.4 (21/7/07)
4-Aug-07	2553.20						

B. TUR

Rs. PER 100 KG

Date	SPOT & FUTURES PRICES AT NCDEX						WPI (93-4'=100)*
	SPOT	FUTURES CLOSING PRICES FOR CONTRACT EXPIRING ON					
		20-Feb-07	20-Mar-07	20-Apr-07	18-May-07	20-Jun-07	
23-Jan-07	2337.20	2281.00	2477.00	2524.00	2563.00	2624.00	188.4(20/1/07)
23-Feb-07	2244.00						193.2(24/2/07)
23-Mar-07	2302.65						190.0(24/3/07)
23-Apr-07	2362.50						195.6(21/4/07)
23-May-07	2325.00						196.6(26/5/07)
23-Jun-07	2490.00						196.2(23/6/07)
23-Jul-07	2669.40						199.5(25/7/07)
4-Aug-07	2600.00						

Note: \* - Data relates to the week ending the date given in parenthesis  
Source: i) NCDEX, ii) Office of Economic Adviser, Ministry of Commerce & Industry, Govt.of India

TABLE 7: PRICES OF WHEAT

Wheat

Rs. PER 100 KG

Date	SPOT & FUTURES PRICES OF WHEAT AT NCDEX							WPI (93-94 = 100)*
	SPOT	FUTURES CLOSING PRICES FOR CONTRACT EXPIRING ON						
		20-Mar-07	20-Apr-07	18-May-07	20-Jun-07	20-Jul-07	20-Aug-07	
27-Feb-07	1039.85	955.20	882.20	886.40	904.80	918.80	935.00	231.8 (24/2/07)
27-Mar-07	1057.85		1005.00	965.00	960.00	977.00	972.00	224.9(24/3/07)
27-Apr-07	959.20			975.00	960.00	980.00	1001.20	217.2(28/4/07)
26-May-07	917.55				940.00	960.00	1001.20	216.6(26.5/07)
27-Jun-07	975.00					985.00	1001.20	216.2 (30/6/07)
27-Jul-07	1052.45						1041.00	223.5 (26/7/07)
4-Aug-07	1023.95						1041.40	

Note: \* - Data relates to the week ending the date given in parenthesis  
Source: i) NCDEX, ii) Office of Economic Adviser, Ministry of Commerce & Industry, Govt.of India

4.32 Besides presenting this evidence to show that outcomes after de-listing were in line with predictions made by futures markets on eve of de-listing, the Commodity Exchanges have also argued that the price rise that occurred in these commodities before de-listing can largely be explained by supply-side factors, i.e. domestic production and foreign trade. This view contrasts with that of critics of Futures Markets who argue that speculative activity increased with introduction of such markets and that this in turn led to unusual price movements. In de-listing tur, urad, rice and wheat, the government appears to have implicitly accepted the latter view at least in case of these commodities. The Committee has therefore examined the movement of some fundamentals in the case of these commodities.

4.33 The factual position on production and prices of these commodities during 2003 to 2007, along with international trade and government stocks is as follows:

- (i). As against past normal production (i.e. average 1995-96 to 2002-03) of 2.36 million tonnes, actual production of **tur** was 2.36 and 2.35 million tonnes in 2003-04 and 2004-05. This rose to a record 2.74 million tonnes in 2005-06, but fell to 2.31 million tonnes in 2006-07. Net imports moved in the narrow range of 0.23 to 0.34 million tonnes throughout the period. Since tur output from any agricultural year (July-June) is largely available for consumption only in the next calendar year (January-December), total supply from production and imports was near normal in 2004 and 2005, rose to above normal in 2006, and fell below normal in 2007. Calendar year inflation of WPI tur (i.e. year-on-year in December) was 10.2%, 9.5%, (-)4.9%, 6.6% and 15.2% in 2003, 2004, 2005, 2006 and 2007 respectively; and the real WPI of tur (i.e. WPI tur relative to WPI all commodity, 1993-94=100) averaged 96.7, 98.5, 87.8, 87.2 and 94.1 during these years. Except possibly the price decline in 2005 (which followed higher than normal price rise in 2003 and 2004), these price movements are broadly in line with movements in supply. In particular, real prices of tur were lower during 2005 and 2006 (when futures trading was significant) than in either 2003 (before futures) or 2007 (after de-listing). *This evidence contradicts the claim that futures trading caused excessive increase in tur prices.*
- (ii). Against average annual **rice** production of 83.39 million tonnes during 1995-96 to 2002-03, rice production in 2003-04 was 88.53 million tonnes. This dropped to 83.13 million tonnes in 2004-05, but rose subsequently to 91.79 million tonnes in 2005-06 and to a record 93.35 million tonnes in 2006-07. Rice exports were 3.4, 4.8, 4.1 and 4.7 million tonnes in 2003-04, 2004-05, 2005-06 and 2006-07 respectively; and Government Rice Stocks were 11.7, 12.8, 12.6, 12.0

- and 11.5 million tonnes as on January 1 of 2004, 2005, 2006, 2007 and 2008 respectively. Taking exports and government stock change into account, total rice availability in the domestic market declined by over 5 million tonnes in 2005 but recovered well beyond the 2004 level in 2006 and increased further by more than 1.5 million tonnes in 2007. Calendar year rice WPI inflation rates in 2003, 2004, 2005, 2006 and 2007 were (-) 1.3%, 1.7%, 2.8%, 4.4% and 7.1% respectively; and real WPI of rice (1993-94=100) averaged 97.7, 90.3, 89.6, 87.4 and 88.3 in these years. Since the real WPI of rice declined throughout the period when futures trading was allowed, and increased only after de-listing, speculation in futures markets cannot be said to have exerted any strong upward pressure on spot prices of rice. This of course also implies that farmers derived no gain from futures trading but, in any case, futures trading in rice had not attained significant volume before de-listing. Nonetheless, it should be noted that movements in WPI rice during this period did not correlate well with movements in availability. In particular, neither the sharp decline in availability in 2005 nor the record production that became available in 2007 are reflected in corresponding WPI changes, suggesting that movements in private stocks may have played a significant role. In this context, it may also be noted that domestic and world rice prices appear to have become somewhat more correlated recently, from negligible correlation earlier. The IMF reference rice world price declined 0.4% in calendar 2005 before increasing 11.5% and 20.6% in calendar 2006 and 2007 respectively. Movements in WPI and availability can be reconciled if private stocks reduced in response to weak world prices in 2005 and were built up again in 2007 responding to world price increase.
- (iii). Against average annual **urad** production of 1.37 million tonnes during 1995-96 to 2002-03, production in 2003-04 was 1.47 million tonnes. This declined to 1.33 million tonnes in 2004-05 and further to 1.25 million tonnes in 2005-06, before recovering to 1.42 million tonnes in 2006-07. DGCIS reports imports of urad (*vigna mungo*) at 0.21, 0.08, 0.08 and 0.33 million tonnes during 2003-04, 2004-05, 2005-06 and 2006-07, somewhat lower than trade estimates of 0.17, 0.13, 0.33 and 0.29 million tonnes respectively. Calendar year WPI urad inflation was (-)10.2%, (-)4.1%, 35.8%, 41.5% and (-)28.5% in 2003, 2004, 2005, 2006 and 2007 respectively; and the real WPI of urad (1993-94=100) averaged 126.6, 116.9, 124.7, 190.8 and 169.9 during these years. Thus, Urad inflation did flare up very unusually in the period when futures' trading was active (August 2004 to January 2007). But this was a period of below normal production and, although higher imports cushioned supply, import unit values rose 48.7% and 37.7% in 2005-06 and 2006-07.

- (iv). Against average 1995-96 to 2002-03 annual production of 69.21 million tonnes, **wheat** production in 2003-04 was 72.15 million tonnes. This fell to 68.64 million tonnes in 2004-05, recovered marginally to 69.35 million tonnes in 2005-06 and then rose sharply to 75.81 million tonnes in 2006-07. Being a Rabi crop, production from any agricultural year (July-June) is available for use only in the next financial year (April-March). As a result, the high 2006-07 output was not available till after de-listing in 2007 and per capita availability from production was below normal in Financial Years (FY) 2005-06 and 2006-07. But net exports had declined from 4.1 million tonnes in 2003-04 to 2.0 million tonnes in 2004-05 and further to 0.7 million tonnes in 2005-06, turning into net imports of 5.8 million tonnes in 2006-07. Government stocks as on April 1 were 6.9, 4.1, 2.0 and 4.7 million tonnes in 2004, 2005, 2006 and 2007. Taking net exports and public stock changes into account, market availability of wheat in FY 2005-06 had declined by around 2.5 million tonnes from the near normal level of FY 2004-05 but this had recovered in FY 2006-07, before increasing further by over 4 million tonnes in FY 2007-08. However, fiscal year wheat WPI inflation (i.e. year-on-year to March) which had jumped from (-) 0.7% in 2004-05 to 11.9% in 2005-06 declined only modestly to 7.2% in 2006-07. In calendar year terms (i.e. y-on-y December), inflation rates of wheat WPI were 4.8%, 5.1%, 4.5%, 19.1% and (-)1.7% in 2003, 2004, 2005, 2006 and 2007 respectively, and annual average real WPI (1993-94=100) for wheat in these years were 103.1, 99.9, 96.3, 103.9 and 105.8. Wheat prices did behave unusually and annualized wheat WPI inflation at 9.8% during the 30 months when futures trading was liquid (August 2004 to February 2007) stands in sharp contrast to inflation in either the previous 30 months (1.5%) or in the year subsequent to de-listing (0.3%, y-on-y February 2008).

4.34 Critics of futures trading have focused most on outcomes in wheat, and linked this not only with speculative gains at cost of both producers and consumers but also with failures in public grain management in the face of uncertainties in both domestic production and world trade. These criticisms should be seen in the following context:

- a) Futures trading in wheat became liquid in August 2004 only after public stocks had declined sharply from earlier highs during 1999-2004. But wheat prices, both domestic and international, were still relatively low. These prices remained flat till August 2005, except for the usual seasonal dip in April/June.
- b) Although futures markets were liquid, the low 2004-05 wheat production was not reflected in harvest prices, either spot or futures. The real WPI of

- wheat in 2005 marketing season was the lowest since 1996. Also, despite low production and prices, 2005 procurement was 14.8 million tonnes.
- c) Subsequently wheat prices rose sharply after September 2005. The increase in wheat WPI between September 2005 and March 2006, at 13.3%, was the highest September-March increase since 1998-99.
- d) While some increase in wheat prices in this period is obviously explained by the output decline in 2004-05, the magnitude of subsequent price increase was much larger than in comparable recent periods following even larger output declines (e.g. 2000-01 and 2002-03). This suggests that other factors may also have played some role. One possible influence was from world wheat prices, which after declining since the beginning of 2004 started increasing from July 2005. The IMF reference price for wheat rose 22.9% between June 2005 and March 2006, and by a further 21.6% till October 2006 when it peaked. Interestingly, domestic wheat futures followed world prices fairly closely throughout the period from September 2005 to February 2007, except during the 2006 harvest and its immediate aftermath (i.e. April-July).
- e) In fact, the sharp post-harvest price rise in 2005-06 was followed in April 2006 by the sharpest seasonal decline in Wheat WPI since 1999. The year-on-year change in wheat WPI in April 2006 was almost exactly the same as the percentage increase in wheat MSP, so that farmers did not gain much from the preceding inflationary episode. This was despite the fact that there were nine wheat futures contracts being traded during April 2006, which together indicated an over 20% wheat price increase by the end of the year, and there were also reports of large private players entering the market to buy above MSP. However, while actual harvest prices remained near MSP, procurement in 2006 was only 9.2 million tonnes, i.e. 5.6 million tonnes less than in the previous year from a slightly larger harvest.
- f) Despite the resulting much larger availability in the private market and despite government announcing very large imports as early as June, wheat WPI increased 17.8% between April 2006 and January 2007, taking the real WPI of wheat to its highest level since 2000. This magnitude of post-harvest increase, mainly after July, is difficult to explain in terms of the prevailing supply-demand balance in the private market. But, rising world prices were clearly influencing expectations as reflected in domestic wheat futures, and government stocks were too low to douse inflationary expectations.
- g) However, the rise in world wheat prices was temporarily reversed between October 2006 and May 2007 and this was reflected with a lag in domestic prices: wheat futures began declining in November 2006 and wheat WPI

peaked in January 2007. Nonetheless, in view of the high wheat price inflation in the preceding year, government de-listed wheat from futures trading in February 2007 and there have been no new contracts thereafter although trades offsetting open interest in existing contracts continued till their expiry.

- h) But de-listing of wheat futures made little difference to procurement outcomes which, if anything, was even more disappointing in 2007 than in 2006. Although procurement did increase by 2 million tonnes over the previous year, this was from an output 6.5 million tonnes higher and fell well short of target despite an MSP (including bonus) increase of 21.4%, which was more than the increase in wheat WPI over the two marketing seasons. One reason for this was the low ratio of market arrivals to production, suggesting that private trade could undercut public agencies and pay somewhat higher prices to farmers by saving on taxes and market fees.
- i) Yet, the overall wheat price situation did turn out to be very different from the two previous years. Wheat WPI increased just 5.9% between April 2007 and February 2008, and year-on-year wheat inflation in February 2008 was negative. Of course, the much higher 2006-07 output was the main reason for this. But, in view of the very different experience in the two preceding years, what is remarkable is that domestic wheat inflation was controlled despite world wheat prices shooting up from June 2007 to February 2008 to a level more than double that in February 2007. Although no clear causality can be established, it is evident that the transmission of international price pressures on domestic wheat prices was much lower after wheat futures were de-listed.

## **GLOBAL PRICE MOVEMENTS**

4.35 Indian Agriculture is no longer fully insulated from the global influences. With non-tariff barriers coming down sharply after WTO, global price movements now impact domestic price movements quite significantly. A close relationship between domestic and global prices has been observed in some of agriculture commodities. If we observe price behaviour of selected commodities in pre- and post July 2004 which can be taken as a month from where futures trading in these commodities really picked up in Indian bourses, the trend growth rate in international prices of maize, soy oil, soyabean and wheat in the post futures period in India were same as in domestic prices (Table 8). The trade component in these commodities during the year 2006-2007 has been strong. The price increases in maize and wheat in global market have been very strong during the year 2006-2007. It is only incidental

that in the post 2004 period when global prices were hardening from a prolonged downturn, future trading was also started in India in these commodities. As noted earlier, for many commodities the acceleration of prices post-futures was from a depressed base. Such price increases cannot be attributed directly to futures trading, but it is likely that the screen based trading in the National Exchanges do capture international price movements more quickly and that this also gets reflected in domestic prices because of the “reference price” role that the IIMB study has highlighted as explanation of better post-futures geographical integration of spot prices across different domestic markets.

**Table 8: Trend growth Rate in International Prices of selected Commodities.**

Trend Growth(%)	(Per cent)					
	Maize	Rice	Rubber	Soy oil	Soybean	Wheat
July-2001 to Jun-2004	11.620	9.650	35.320	24.600	25.700	10.010
July-2004 to June 2007	20.500	7.700	24.600	13.300	6.600	14.600

Source: IMF Website

4.36 The above implies that since information regarding world prices, both spot and future, are more likely to be available to entities trading on future exchanges than the much more numerous and smaller players in physical markets, it is likely that the futures markets may lead in the transmission of world prices to the domestic future prices. In this context, it should also be noted that for most agricultural commodities, the volatility in both spot and future global prices are generally much higher than for corresponding domestic prices. In the case of sensitive commodities such as rice, wheat and sugar, the monthly co-efficient of variation of world prices average more than 3 to 4 times to the corresponding co-efficient of variations in domestic WPI. This raises problem about which domestic price policy is still rather unclear. For example, world prices rose sharply in the mid 90s, declined even more sharply between 1997 and 2004, and in course of the last two years have seen unprecedented upward movement. Policy reactions to this, to protect consumers from sudden inflation or farmers from sudden drops in prices, have in general not been very satisfactory. These have involved stop-go measures in some instances and undue delay in others. It is sometimes argued that strong futures market would be able to reduce uncertainties in this respect, but the fact is that the much higher price volatility

in world markets, compared to in India, is equally true of both world spot and futures prices. If, as is desirable, both Indian consumers and Indian farmers need some protection from these very large world price volatilities, tariffs and other trade measures will have to be used much more flexibly and proactively than as at present. In fact, the reaction time necessary for required changes in trade interventions will need to be less, the quicker is the transmission of international price signals into domestic prices, for example, through futures markets.

4.37 The present context is one where international prices of almost all sensitive commodities have suddenly become much higher than domestic prices from a situation which was the reverse just three years ago. This poses difficult policy problems for Government. If current world prices are likely to persist, the correct move would be to allow Indian prices to also move in the upward direction. However, quite apart from political considerations that may require adjustments to be fine-tuned to acceptable levels of inflation, it is not entirely clear that world prices will remain at these high levels. There remains the possibility, as has been usually observed in the past, that world agricultural prices may in the near future drop equally sharply.

4.38 The present policy stand is to insulate domestic prices from the high world prices involving a number of different measures for example, high subsidies, lower tariffs and export restrictions, some of which have been implemented suddenly in almost knee-jerk manner. Moreover, since inflationary outcomes depend quite critically on the way that inflationary expectations build up, there is considerable, although sometimes exaggerated, concern with steps designed to show that the Government is acting to curb such expectations. Since futures markets can be a source of formation of domestic price expectations, these are not immune to similar treatment. Although from the evidence considered above it cannot be concluded emphatically that futures trading has in anyway fuelled increase or volatility in prices in agricultural commodities, it is also not possible to rule this out entirely. The best course of action would be to identify those commodities where there is possibility of futures trading affecting expectations that may influence inflation in essential commodities, insulate these from futures trading till the policy concern with inflation abates, and in the case of all other commodities reassure the Exchanges of a long term commitment to fostering growth of these markets, subject to corrections in the many weaknesses that have also been identified with respect to contract design and excessive speculation.

## **5. STEPS TO MINIMIZE THE POTENTIAL RISKS OF FUTURES TRADING**

5.1 The above analysis indicates that the current evidence available does not provide any conclusive evidence about whether there is any causal relationship between futures trading and rise in prices of the agricultural commodities. This is in fact true not only in India but also in the rest of the world. Although there is a large body of literature which indicates that futures trading is associated with low volatility of spot prices-intra seasonal, inter year and long term, and help in production planning of these commodities, more recent evidence is mixed even in the US. There are also, however, concerns and apprehensions about futures trading leading to price rise. In view of these markets having a potentially important role in efficiency of the market in free and liberalized economy, it is important to take steps to contain potential adverse impact on spot prices and also to dispel the negative perception about the market.

5.2 With the complete lifting of prohibition on futures trading in 2003, in the real sense these commodity markets have been opened up only recently. They have yet to make a significant headway. There are not many empirical studies available so far which have examined the role of these markets in the agricultural economy of the country.

5.3 The results of IIMB study on **Impact of Futures Trading in Wheat, Sugar, Pulses and Guar seed on Farmers(2008)** conducted for FMC comes to the conclusion that future markets may not have served the purpose of risk management. Some of the other studies quoted earlier point even more directly to large inefficiencies in existing futures markets and suggest that there may indeed be destabilising effects from futures trading on spot markets for agricultural commodities. There is recognition in all the above studies that futures markets are new and still in a learning phase. However, although new and not yet established in terms of either minimum critical liquidity or operational efficiency, their growth has been phenomenal. This phenomenal growth naturally attracts criticism, albeit without support of strong empirical basis, for its perceived role in fueling inflation. These criticisms emanate because of the following reasons:

- (i) If there is a good liquidity in the market, it is always presumed that the futures market is not tethered to physical cash market.

- (ii) Participants in the market have different and opposite views on price expectations. Those who lose in this market tend to find fault with the operations of the market or with the market itself instead of attributing the loss to his error of judgment.
- (iii) There are some sporadic short term aberrations in the functioning of the market such as non-convergence of spot and futures prices and the uncertainty about basis etc.
- (iv) Sustained upward/downward movement in the prices of a commodity due to inherent demand – supply mismatch which the commodity derivative market can't remedy.
- (v) Futures markets are seen as hindrance in successful procurement operations of the government in the market.
- (vi) Differences exist of the extent to which domestic agricultural markets should be integrated with world commodity markets which show much greater volatility.

5.4 It should be noted that the allegation that commodity markets fuel inflation is not unique to India. It is a global phenomenon and markets get accused even in the developed countries such as the US. The US President had accused speculation in futures market for steep price hike of oil after first Iraq-Kuwait conflict (1990) and even suggested to ban the futures. The CFTC Chairman had to testify that futures prices are not manipulated and the price hike is a result of fundamental demand - supply mismatch. More recently, again there have been criticisms regarding very wide mismatches between closing futures and corresponding spot prices in the course of the recent very large increase in world agricultural commodity prices. The CFTC has called a special meeting to discuss these matters on 22<sup>nd</sup> April, 2008.

### **Pace and Sequence of Market opening up**

5.5 New and modern technology-driven Exchanges with best international practices have come up. All these developments have taken place in the backdrop of a long history of ban in forward trading when the perception about these markets was not good. That perception has not gone away totally. Even today people express their doubts about the need and efficacy of these markets. Therefore, it becomes all the more important that these markets are set up on a strong foundation. There should not occur any mishap or mischief which may discredit the market as a whole. These markets should not get accused of doing something which is perceived inimical to the public interest. These markets are bound to challenge status quo and adversely impact

some interest groups. The Government/Regulator/Exchanges should be able to explain that the markets are beneficial to all groups and if there are any transitional costs, these are the minimum and will be more than compensated with the overall benefit to the economy and the stakeholders. However, for this, Government would need to take a clear position on what it intends to do regarding its currently large and all embracing involvement in the physical trade of some commodities particularly food grains. It should be recognized that such involvement is both an impediment to significant growth in futures trading as in the case of rice; and conversely there might be valid concerns that speculation in futures markets retard or hamper government's procurement operations as in the case of wheat. The pace and sequence of any changes that are contemplated should be stated clearly and should not be disruptive. The markets react strongly to any adverse event/news, for example, the suspension of trading in futures markets. No such steps should be taken which requires retraction. The stop-go approach to reform the market is more harmful than a slow but unidirectional forward movement. If it is considered necessary to maintain the current system of public procurement and PDS, the government should consider all aspects of creating conditions for orderly growth of other segments of the market before taking any decision to revive futures trading in recently delisted 4 commodities. A cautious approach is to be adopted for revival of futures trade in these commodities rather than have to confront a stop go situation again in the future.

### **Regulatory Framework**

5.6 In order to defend the market against criticism, it is essential to minimize the potential adverse impact of futures trading on prices of agricultural products. This requires properly functioning and regulated markets. There is a need for a clear and unambiguous regulatory framework. The broad parameters of the functioning of the markets have to be clearly laid down. The regulatory authority should have the capacity and the power to discipline the market. Once these pre-requisite are in place they will not only help in controlling aberrations in the market but also help the government and the regulator to explain to various stakeholders at large any abnormal behavior in the market that might occur as a result of some basic fundamental demand and supply factors.

5.7 The regulatory framework for the market is provided in the Forward Contract (Regulation) Act, 1952. The FMC set up under the Act regulates the market. Associations organizing forward trading have to seek recognition. The Rules and Bye laws of the association are approved by the Commission. The regular oversight of the

market is done by approving suitable contract designs, fixing of price limits, trade margin requirements, daily mark to market margins, open interest limits and enforcement of best international practices for trading, clearing and settlement of the contracts. A continuous and daily reporting of trade details to the FMC is mandatory. Reasons for abnormal market behavior are thoroughly probed to take remedial action to protect market and financial integrity. Any violations of regulations and attempt to manipulate the market are investigated and strict penal actions taken against the participants found violating the rules or adopting any manipulative practices. The participants are suspended or debarred from trade. The Forward Contract (Regulation) amendment Bill 2007 makes provisions to impose monetary penalty for violations of Regulations and abuse of market practices. The autonomous status envisaged for the regulator by Amendment Bill is designed to provide it powers and capacity to intervene in the market effectively and with agility to prevent any misadventure. These changes will enable the Regulator to maintain discipline in the market to generate trust in fairness and efficiency of the market.

5.8 FMC should frame regulations on various aspects of market operations for transparent and efficient functioning of the market. The care should be taken to enable farmers and small operators to take benefit of these markets. Exchanges should be directed to design their market procedures and contracts such as to enable farmers an easy access to these market and protection against any market malpractices.

5.9 The most important enabler of the market is to upgrade the quality of regulation both by the FMC and by the Exchanges. In a period of over 3 years of their existence, commodity markets have thrown up many new ideas and challenges. The scope and breadth of the market is increasing. The initial phase of growth by extending coverage, scope and infrastructure has almost reached a plateau. Further growth of this market is possible only by intensification of efforts to generate faith and confidence in the market. The most important element to achieve this requires the Exchanges to act as self regulatory organizations and to demonstrate fair play, objectivity and customer orientation. The contract designs, delivery mechanism such as assaying, availability and accreditation of warehousing should meet the needs of the participants for hedging their price risks. The contract design should be tethered to the physical market. Before listing of new products on futures market, a rigorous examination is essential to find if they are going to be beneficial to the public and the wide spectrum of stakeholders. Broad-based consultations with various interest groups should be done, though it is recognized that some groups interested in status

quo will oppose the launch of the product. It will help to address their opposition as also to handle later criticism if the product is launched with thorough research and wider consultations. It is noted that even now products are launched after research and consultation but these efforts need to be strengthened further, particularly at the level of regulatory approval of contract design. In this context, particular emphasis needs to be put in avoiding approval of such contracts where basis risk is likely to exceed spot price risk so that approved futures contracts are less subject to the valid criticism now made that some contracts favour only speculators and not those who wish to hedge their trading in physical markets. However, once the contract designs have been properly formulated, frequent changes in them or in the regulatory measures should be avoided. Frequent changes in designs and regulations generate their own regulatory risks. All these require regulatory rules and procedures that should be framed with due care and in-depth study, keeping in view the demands of the market.

### **Derivatives Markets to be Anchored to Physical Spot-Markets**

5.10 The derivative market has to be anchored to physical cash market. The physical spot markets have large number of infirmities. Till these infirmities are reformed, it will be difficult for the futures market to progress far ahead of them. Futures markets can act as a catalyst of change for spot markets and nothing more. Whenever futures markets try to grow faster than the under-developed physical markets of underlying commodities, the disconnect between the two gets widened, thereby opening up futures market to the criticism of being driven by speculators, even if benign and closely regulated. Information based trades, often referred to as speculation, is possible through both futures and spot markets transactions. For example, a trader expecting an increase in prices could buy the spot asset, store and sell once prices have increased. Alternatively, he could buy a futures contract today and sell an offsetting futures contract once prices have increased. The futures contract transaction will generally involve lower transaction costs. It also relieves the trader of the need to store the physical asset and finance its purchase. But all this requires that there be a fair consonance between improvements in physical trade and the pace of growth of futures markets.

5.11 Given the relationship between the two markets, it is not too meaningful to talk of one market driving the other. Information based trades can occur in either of the markets depending upon relative transaction costs. The other market then adjusts to maintain the no-arbitrage relationship. In well-functioning markets this adjustment is instantaneous so that it may be difficult to identify the sequence of market

reactions. Since both markets reflect the same fundamental supply demand conditions almost simultaneously, it is difficult to distinguish whether futures markets *cause* increases (or decreases) in spot prices or it is the other way around.

5.12 Short selling is likely to be easier through futures markets rather than spot markets, given the costs of borrowing the physical asset for short selling. Hence, futures markets should make it easier to trade on information, implying lower expected prices. If, however, it is found that there is a tendency for spot prices to rise when new futures contracts are introduced, the regulator should take due cognizance.

5.13 Futures markets efficiency is contingent on the efficiency of spot markets. Efficient spot markets reduce the cost of future- spot arbitrage. Efficient spot markets in commodities would require integration of markets across geographical regions and quality. This reduces the basis risk in the use of futures contracts. Integration of the spot markets requires development of rural communication, transport and storage infrastructure. The committee is of the view that in order to expedite this, a substantial part of the transaction tax which is now being imposed on futures markets should be earmarked for development of the required physical market infrastructure.

5.14 This also requires removal of regulatory restrictions on movement and storage of commodities. There is a need to give thrust to encourage all state governments to adopt the Model APMC Act. In fact, the model APMC Act has the potential to revolutionize agricultural marketing in the country. The setting up of National Spot Electronic Exchanges by the National Commodity Exchanges is an attempt to create a national integrated market. The legal and regulatory hurdles in setting up and operations of these National Spot Exchanges should be removed. Even the Standing Parliamentary Committee of MCAF&PD has recommended that spot and futures markets need to be placed under the same regulatory framework. The Standing Committee has gone to the extent of recommending that in order to bring in better coordination and synergy between spot trading and futures market, spot trade need to be placed under Union or Concurrent List by amending the Constitution of India.” This should be done at the earliest. It is, in fact, felt that Entry 33 in the Concurrent List of the Seventh Schedule of the Constitution of India provides some jurisdiction to the central government in respect of spot trades with interstate dimension. It is felt that till such time the amendment can be made in the Constitution, some steps should be taken within the present legal framework whereby the commodity market regulator gets some jurisdiction over warehouses and spot trade practices which have a bearing on the successful operations of the futures market.

### **Speculation an Integral part of Efficient Futures Market**

5.15 As has been indicated elsewhere in the Report, the futures trading in agricultural commodities is as yet limited to only a few commodities. The volume/production ratio of some of these commodities is too high, indicating the prevalence of excessive speculation in futures trading in those commodities. The commodities with a history of high price volatility (e.g. Guar seed) are prone to excessive speculative interests which open up futures market to the charge of distorting prices having no linkage to the fundamentals of the demand and supply factors. The presence of the speculators on the futures market is often looked upon with suspicion. It must be remembered that if only the farmers and consumers were to operate on the agricultural commodity markets, there is likely to be mismatch in their respective marketing strategies and therefore, they would not be able to transact business at any given point of time since the total volume of business would be very thin. The market would, therefore, become illiquid. Hence, speculators step into to provide the transaction matching through risk transfer and consequential liquidity. In a free market with availability of technology for instantaneous flow of information speculative funds cannot bring secular price rise as supply responses (through inventory unloading, imports and production) are fast. It is opacity or non-availability of efficient markets, like futures markets that gives power to the manipulator-speculator. On the other hand, an efficient and transparent market with sufficient depth of participation will encourage responsible and informed speculation.

5.16 This kind of apprehensions exists in the developed markets also. The Agricultural producers do not seem to be directly patronizing these markets due to various characteristics of these markets. Despite many empirical and deductive explanations regarding direct or indirect benefits of these markets to its participants and the economy, the doubts about them linger on even in the developed economies like US.

5.17 The Commodity Futures Modernizing Act of 2000, which provides the framework for modernizing commodity market in the US, specifically incorporated a section (titled Special Procedures to Incorporate and Facilitate Bonafide Hedging By Agricultural Producers) S.4p), to direct the CFTC (the regulator) to issue Rules and Orders to make these markets useful for agricultural producers and to report to the Congress the steps taken to implement those directions.

### **Consultative Mechanism for Development of the market**

5.18 The exchanges as well as FMC should have a strong back up of domain knowledge of commodities which are traded on the exchange platforms. The knowledge of fundamental economic characteristics of production, marketing and use of the commodity so as to understand the factors influencing their prices is of utmost importance. Once a proper contract design of a product is in place, the surveillance of the market becomes easy. There should be a consultative group comprising of persons with proven domain knowledge of the commodity sector, both in the FMC as well as in the Exchanges. These consultative groups should appoint sub-groups drawing persons with knowledge and understanding in each commodity traded in the exchanges. It is understood that a group is already functioning in the Commission known as Risk Management Group (RMG) comprising of experts from academics, securities/commodity markets and representatives of National Exchanges to advise the Commission in devising regulatory measures. Though this is a step in the right direction, such consultation needs to be broad-based where persons with expertise not only in the market mechanics and functioning but also persons having understanding of the commodities domain, trade related and broad policy issues should be represented. An officer of the FMC should be the Convener of this Group. The Exchanges, through FMC, should submit monthly reports to the Consultative Group highlighting developments in the market. These Consultative Groups should meet regularly but not later than once in a quarter, to deliberate on various technical and operational issues of concern to futures trading in various commodities and provide inputs to the Forward Markets Commission in the shape of recommendations. They may also give advice on the need and rationale for futures trading in new commodities and on modifications in the existing contract designs.

5.19 At the apex level, there is a need to have a Committee on Commodity Market akin to the HLCC in the Capital Market on which the Departments of Agriculture, Consumer Affairs and Commerce should be represented along with at least one Economist of repute and one representative each of farmers and cooperatives. The Chairman, CACP should chair this Committee and Chairman, FMC should be the Convener. This Committee should deliberate on broad policy issues concerning the development and regulation of the commodity market.

## **6. FARMERS PARTICIPATION IN COMMODITY FUTURES MARKET**

6.1 One of the justifications for opening up and rejuvenating commodities futures markets in India during the beginning of the current millennium has been to create infrastructure which will help farmers to access the market as well-informed players. Price discovery and price risk mitigation are the main objectives of commodity futures markets, which enables the farmers to take rational decisions about cropping and marketing of their produce to increase their farm income. This creates incentives and resources for investment in agricultural operations to improve productivity. The National Agricultural Policy 2000 (NAP), sought to “enlarge the coverage of futures markets to minimize the wide fluctuations in commodity prices as also for hedging their risk”. The endeavour ought to be to extend futures trade to all agri-commodities in course of time. **The Guru Committee (2001)** emphasized the role of futures trading for price risk management and marketing of agricultural produce.

6.2 Farmers can derive benefit from futures markets as follows:

- i) By participating directly/indirectly in the market to hedge their price risks.
- ii) To take benefit of prices discovered on the platform of commodity exchanges by taking rational and well informed cropping /marketing decisions.

### **Direct Participation in futures trading.**

6.3 Farmers can use agri-futures markets to transfer their price risks. The structure of markets, contract designs and other requirements of trading on these markets should be simple and easy to enable farmers to participate in these markets. There has been a significant increase in market infrastructure during the last three/four years. The network of screen based Trader’s Work Stations (TWS) of three National exchanges has spread to about 800 cities/towns of the country. Besides, there are 21 regional commodity exchanges trading in different commodities. The number of commodities offered for futures trading has also been growing, which stood at 94 at the end of March 2007. The contract designs are tailored to meet the needs of the physical market. Despite these enabling facilities and provisions, the farmers are not yet patronizing these markets in sufficient numbers. However, in some commercial commodities and specific regions farmers trade futures such as spices and rubber farmers in Kerala State.

6.4 The low participation of farmers in futures trading is not unique to India alone. In fact, the direct participation of farmers in agri-futures markets is very low even in developed markets of US and Europe. A CFTC (USA) report submitted to the Committee on Agriculture of the House of Representatives in 2001 clearly states: “Available data indicate that overall direct producer use of futures and options market is relatively low, although many, mostly larger, farmers are regular user of the markets for hedging cash market positions. However, many producers benefit indirectly from active futures and options markets, either as member of co-operatives or through price discovery and price basing benefits offered by futures markets”. The Indian farmer is less likely to participate directly as these markets are complex; they need to be tracked continuously to take benefit out of them; the support infrastructure of warehousing and commodity finance is inadequate. Moreover, at the early stage of development of these markets, where liquidity in many commodities is low, they are prone to high impact costs. The awareness and knowledge of accessing these market among farmers is yet not adequate. FMC and exchanges are making efforts to spread awareness and knowledge of these markets among farmers and also to make these markets safe for trading by them. A large number of awareness programmes have been conducted during the past two years. But they have to go a long way to attract farmers to participate in these markets. The cutting-edge traders no doubt have the understanding and capacity to participate in these markets. But how much benefit of these markets percolates to farmers through them depends on the level of competition among traders and the degree of awareness and capacity among farmers to extract these benefits for themselves.

6.5 Information provided by NCDEX suggest that there has been significant recent improvement in the participation of hedgers in agri-commodity contracts of NCDEX which is the major exchange for agri-commodities. The data on Hedger-ratio of select agricultural commodities contracts of NCDEX during the first 6 months of 2007 in **Table-6** below shows a good participation by hedger.

**Table-6: Hedger Ratio for Select Commodities**

Commodity	Hedger-OI ratio					
	Jan-07	Feb-07	March-07	April-07	May-07	June-07
<b>Pepper</b>	20.78	18.10	18.97	18.55	18.67	16.79
<b>Sugar M</b>	45.37	43.40	46.61	44.03	33.57	34.53
<b>Soya Bean</b>	65.82	68.45	68.58	69.56	60.34	57.02

Commodity	Hedger-OI ratio					
	Jan-07	Feb-07	March-07	April-07	May-07	June-07
<b>Soya Oil</b>	25.82	31.88	38.11	31.43	51.31	49.90
<b>Wheat</b>	21.37	28.90	40.77	34.42	45.26	45.42

*Source: NCDEX*

6.6 It is, however, not clear from this table as to how many of these hedgers are farmers. Most of them are learnt to be corporates, stockists, traders and cooperatives like NAFED/HAFED. To the extent actual commercial users are using these markets - these markets are getting aligned to physical markets is a good indication for the robust growth of both futures markets and cash markets. But, as the IIMB study notes the direct participation of farmers, as found in the survey conducted for that study, is almost negligible.

6.7 Another indicator of access of these markets by agricultural producer / trader is that the clients who are using these markets are not concentrated in metro and big cities. The client base of NCDEX is spread to small towns / cities. The places other than Delhi, Mumbai, Kolkata, Chennai, Bangalore, Hyderabad, Ahmedabad and Jaipur account for 68% of total clients. Being based in small mofussil towns it can be presumed that users are closer to the farmers and therefore, the benefits of this market may be percolating to actual producers also, though indirectly.

6.8 There are some anecdotal evidences of the benefits accruing to farmers. It is reported that farmers of guar seed and menthol have been able to get a higher proportion of the final price due to incremental bargaining power brought by transparency of futures prices on exchange platforms. It is also reported that some farmers in Punjab held back their produce of wheat during harvest season in April-May 06 on the basis of signals of higher futures prices on NCDEX platform and sold at higher prices during October / November 2006. Farmers are again reported to have held back their produce in April / May 2007 to sell at higher prices later. However, it is precisely the low procurement that followed which led to suspension of trading in wheat. Such contradictory signals should be avoided

### **Price Information for Better Decision Making.**

6.9 Futures prices discovered on the platform of Exchanges provide an important input to all decision makers, be they farmers, processors, warehouse keepers, traders or policy makers. Futures prices indicate democratically observed price expectations at future dates. These prices - efficiently determined, disseminated and accessible to

all concerned - can pave the way for optimal decision making and resource allocations. If farmer gets advance information about the price of the produce that is likely to prevail at the time of harvest he can plan his crop and investment accordingly. Also, as the harvest time approaches the prices likely to prevail much after harvest can guide him to take decision to sell or hold back his produce at the time of harvest. Thus, given his capacity and availability of other enabling infrastructure such as warehousing, finance etc. he will be able to exercise his marketing option in such a way as to maximize his income realization from his produce.

6.10 A large proportion of Indian farmers have small and marginal holdings. Their marketable surplus is small or negligible; their access to market is poor and costly; their holding capacity is weak as they need cash for their consumption and other needs immediately at harvest; and access to credit is poor. In order to ensure that benefits of price discovery on Exchange platforms reaches them, it is of prime importance to create infrastructure which enables dissemination of prices to the remotest corners of the country. The technological revolution in print and audiovisual media has made it possible to attain such a reach. The efforts made by the FMC and Commexes for dissemination of futures prices through various channels, though laudable, are small and inadequate considering the vastness and magnitude of the task. These efforts need to be strengthened further and new channels of dissemination explored. Apart from the use of print and audiovisual media, efforts should be made to use the existing extension services of state-Governments/Universities to reach the farmers and create awareness about the futures markets and the prices emanating from them. The commodity markets have been opened up only recently and it would be too ambitious to expect substantial dissemination of futures prices. Means and mechanism should be devised to use the trade outlets of farm machinery, inputs etc. to reach farmers as these outlets are visited by them frequently. Most of these people are locals or conversant with local customs and aspiration. They enjoy the faith and trust of the farmers. Farmers have also to be educated about the places where price information can be accessed regularly and how to use them for taking informed decisions. Mere transmission and dissemination of price information may not be enough. The target population needs to be explained its use as well as the manner how to interpret it. This is a stupendous task which requires continuous and vigorous efforts by all concerned agencies. Exchanges and FMC need to print literature in all languages and distribute it to the farmers through all possible channels.

6.11 Availability of and access to information, though necessary, is not the sufficient condition to enable farmers to benefit from it. The farmers need to be empowered to use this information. Empowerment is much more difficult task than making information available. Farmers need to have holding capacity to sell produce at the most opportune time at the best available prices. This requires availability of warehousing and credit facilities so that the farmer can time his marketing. His bargaining strength increases when he has not pre-sold his produce to the traders/wholesalers for meeting his needs for cash to meet his farm input and consumption needs. Banks' participation in commodity markets in the context is quite critical. Their presence is required not only to extend finance against warehouse receipts (WRs) but also to enable small and marginal farmers to access the commodity market. Without the availability of such support infrastructure, the full benefit of risk transfer and price (discovery) information will not accrue to farmers. Passage of Warehousing (D & R) Bill is a first significant step in the direction of empowering farmers to market their product profitably. This has a potential of transforming the marketing and be instrumental in creating an integrated national market in which spatial rigidities of information flow are reduced as supplies tend to flow from low price locations to high price locations.

### **Enablers for participation**

6.12 Exchanges are devising mechanism and products to enable the farmers to participate in these markets. National Exchanges are pioneering a pilot scheme of Aggregators' who will collect retail produce of the farmers and trade on the Exchange platforms of exchanges on behalf of the farmers. However, it needs to be ensured that the scheme is not used to abuse the market, the interests of the farmers are fully protected against malpractices and cost of intermediation is minimal. The Co-operative institutions, RRBs, CCBs, NGOs, State Agricultural Marketing Boards, Warehousing Corporations, Commodity Development Boards which work in the rural areas and have close association with and the trust of farmers should be allowed and encouraged to act as aggregators. In order to expand the reach of futures market and promote the interests of the farmers in these markets, it would be essential that these institutions are roped in to act as intermediaries/channels. Further, some of these organizations have direct involvement in agricultural marketing set up. To start with, banks should be allowed to take position on commodity exchanges to the extent of the limit allowed to them by their regulator against which they should be permitted to offer OTC products to farmers in specific commodities for the purpose of hedging. These OTC products will be tendered and customized to meet the needs of small

farmers. Exchanges should explore as to how these institutions can be granted special status such as higher position limits, especially for delivery based trading, exemption from margins for stock deposited in the exchange warehouses etc. These measures will help in keeping the futures close to the realities of spot market and also help in convergence. In order to derive benefits to the farmers, sufficient safeguards should be incorporated for the operation of these schemes.

### **HAFED Experiment**

6.13 Haryana Agriculture Marketing Federation (HAFED), during its three years of operation in the wheat futures market, has successfully used NCDEX wheat contract as 'short hedger' against cash (long) purchases from farmers. HAFED being a Federation of member societies has shared the profit with its member societies of the farmers. HAFED had plans to act as aggregator for farmers' societies to use NCDEX wheat contract for short hedging purposes which were dashed after directions were issued not to register any new contracts of wheat futures after 27<sup>th</sup> Feb. 2007.

6.14 The moral of these stories is that the plain vanilla futures contracts may not be very suitable to the farmers. Some other mechanisms/products linked to futures contracts will need to be devised to suit the needs of the farmers.

6.15 'Options in goods' can be another hedge instrument suitable for farmers' needs. However, complex options products may be difficult to comprehend and not suitable for farmers' needs. In case of agri-commodities, only simple 'options' may be allowed for some time till market attains maturity of operations and regulations and the farmers attains adequate understanding of the markets and of techniques to use them. This will require an amendment to the FMC Act. Moreover, since the premium on option may be quite high, this can be subsidized to some extent by using the collection from proposed CTT exclusively for the development of agricultural markets and to improve access of the farmers to them. It is also worth exploring the possibility of FCI operating in the commodity market as an option writer in respect of goods it needs to procure for the operation of PDS. This could reduce the cost of operations and incentivise market operations. The operation of MSP is like a zero premium option and options and MSP need not conflict. Whereas open-ended purchase could continue to be made at MSP as floor price, exchanges should be able to offer at a premium options for prices higher than MSP. Farmers should be encouraged to participate in these put options for which FCI can be the options writer.

## **7. APPREHENSION OF EXISTING TRADERS OF AGRICULTURAL COMMODITIES**

7.1 The apprehension of existing traders both in cash market and futures markets stems from the very rationale of opening up of futures markets. These markets are touted to help reduce the long chain of intermediaries so as to reduce the mark-up between producers' price and the consumer price and to ensure a higher share of the consumer price to the producer. A similar fear arose when many other sectors were liberalized and opened up for competition. At present, this kind of doubts are being raised against the opening up of retail trade and agricultural trade. It is a fact, and the mission of the modern market architecture, including the futures trading, is to bring democratization and transparency in price formation. This is aimed at loosening the control of a few dominant groups in price determination of commodities. There are cartels of traders in different commodities (pulses in Akola and Mumbai; gur in Muzaffarnagar & Hapur, Menthol in Chandausi, U.P, guar seed in Jodhpur, Rajasthan; pepper in Kochi, jeera in Unjha, chillies in Guntur and Nizamabad; turmeric in Nizamabad and Sangli, Soya oil in Indore etc.) who command significant control on price determination of the commodities. They thrive on benefit from the fragmentation of the spot market and information asymmetry between the producers and their well organized traders. The greatest criticism of futures trading has come from these trade interests. The kind of representations received by the Government and the FMC testifies to this fear among these interest groups. Prices which will be discovered on electronic platforms will be determined on the basis of information and views about the demand-supply situation by the participants throughout the country including information from the traders/speculators and arbitrageurs as against a few traders concentrated in a few locations determining prices now. Thus, the integration of information at the national level (even factoring in the international supply-demand information) and transparent trading on an electronic platform accessible to all prospective participants will lead to a more holistic price discovery and thereby, empower the producers and endeavors to maximize their marketing power and minimize their risk. In other words, it will take away the undue advantage enjoyed by a trading cartel in a fragmented market and democratize the trading process.

7.2 However, the traders' fear is on account of a myopic approach and is based on a static view of the market. As markets become more integrated and efficient, the volume of trade will grow, new activities relating to commodity trade will grow with the opening up of new avenues and opportunities of trade. No doubt, traditional ways of trade and activities will have to give way to new practices and activities. Of

course, there will be costs of transition as those unwilling or unable to change will suffer. But those with initiative, skills and innovation will find new and limitless opportunities for growth and prosperity. Apprehension of losing control will exist anyway as the corporates and the MNCs have already been permitted to trade in cash markets. The competition from new and efficient entrepreneurs is serious in the spot markets. Futures trade will, in effect, provide opportunity to hedge their price risks and a greater strength to compete with the big corporates, which otherwise because of their size, can become price setters in the market. It is, however, to be conceded that the Govt., FMC and Exchanges have not been able to reach out to these interest group to allay their fears. There is a need for advocacy and strong regulation of the futures market so as to generate confidence among all groups of stakeholders. This can be done by upgrading the regulatory capacity and capabilities of FMC rather than undermining the very need of trading and depriving the economy of the benefits of these institutions and the instrumentality to help bring efficiency in agriculture marketing and increased benefits to all the stakeholders.

## **8. BOOMING FUTURES TRADE IN STAGNANT AGRICULTURE ?**

8.1 Trading volumes in commodity exchanges have spurred in recent years. This has raised concerns among many that while there is a virtual stagnation in Indian agriculture with low investment flowing in this sector, there is a lot of enthusiasm in the derivatives markets. This raises doubts about the source of excessive flow of funds to this market. The facts, however, do not support this perception.

8.2 A closer look at the figures of trading value of the national exchanges shows that the most of the trade in commodity exchanges occurs in Bullion, Metals and Energy products. There is a very little growth in futures trading in Agriculture commodities during 2006-07. The growth in Agri-commodities was only 10% against 126% in Bullion and 2069% in metals. The current year is likely to record negative growth of trade for agricultural commodities. Only eight commodities contributed 84 % value of futures trade in agri-commodities in 2006-07. The flow of fund to these markets is a small percentage of traded amount as the derivatives are a highly leveraged instrument.

8.3 That the trade interests have emerged in agriculture sector is a good sign to attract investment in the sector by making agricultural activity remunerative to farmers. The high volume of trade represents active interest of corporate, including

MNCs associated with the respective commodities, traders and investors. Also there has been participation from Cooperative institutions like NAFED, HAFED etc . Deep penetration of financial services in the hinterland of the country through the membership of the national exchanges has contributed significantly to the same. There are many traders from physical markets who have themselves taken membership of the commodity exchanges. The spread of trading terminals is across all the states and there has been significant trade by the clients in a number of states and is not concentrated in few metros alone. There is a need to have a strong and resilient agriculture sector attracting investment for raising production and productivity. For this it is necessary to make agriculture remunerative. The vibrant agriculture markets including futures markets are the frontline institutions to provide early signal of the prospects of the sector for attracting flow of investment. These markets deserve to be promoted for giving such signal

8.4 It is argued that futures market benefit neither producers nor ultimate consumers but only help speculators gain at the expense of these two groups. This is an ill-informed argument. Access to well functioning futures markets help producers hedge their price risks and certainly improve the price discovery process. Occasionally it can happen that futures trading by hedgers are far less than that undertaken by speculators which can lead to excessive price volatility. However a system of progressively rising margin requirements, position limits and trading halts when prices hit specified ceilings/floors can act as adequate safeguards.

8.5 Speculators tend to take position where there is more liquidity and volatility. This is the reason for high trading in commodity with low economic size like Gaur seed, Mentha oil, Chilli, Jeera, Pepper etc. Trading interest is generated because of high speculative interest during the bullish phase in such commodities thereby resulting in high volumes.

## **9. CONSULTATIONS WITH STAKEHOLDERS**

9.1 The Expert Committee had sought views / opinions from the public on the role of forward trading in marketing and development of agriculture. The Committee also met important persons to share their experiences and views on the functioning of the futures market. A list of the persons, who shared their experiences with the Expert Committee, is given at **Annex – IIA** and those who sent written submissions to the Committee is given at **Annex – IIB**.

9.2 A few memoranda submitted to the Govt. by some trade Associations/interest groups specifically suggesting the banning of futures trade in specific commodities were also forwarded to EC for examination and to give its opinion in the matter. Their contention have also been taken into consideration while formulating the general recommendation of Expert Committee, though it refrains from making any specific comments on those memoranda. The views which emerged from these consultations are summarized in the following paragraphs

9.3 It was indicated that farmers are not directly participating in the futures market. Presently farmers are not in a position to take the benefit from the higher price because they have to sell the produce at the harvest time when the prices are low. The necessary infrastructures need to be put in place for encouraging participation of the farmers and take benefit from the futures market. Information on futures market does not reach all parts of the country. Presently there is an information asymmetry between various markets. Most of the farmers are not aware of the futures market. The awareness about the futures market needs to be increased and it should reach the remote areas of the country for the benefit of the primary producers. The major portion of benefit in terms of higher price realizations has been taken away by the intermediaries in the value chain.

9.4 Presently, commodity futures and its physical markets are not integrated. There is a need to address this missing link through establishment of electronic spot exchange in the country. It was observed that there is a need to create a mechanism that will enable the farmers to benefit from the futures markets. The Warehouse Receipt System should be designed in such a way that it will benefit small and marginal farmers. Due to the knee-jerk reactions and erratic policy of the Government, the investment by corporates in the agriculture sector has slowed down.

9.5 There is a need to address the issues relating to supply shortage in some commodities, increase the production base/productivity of food grains and pulses. Technological improvements and profitability of investment in crop husbandry is essential to increase long term availability. That the delivery system in the National Exchanges needs to be broad based and delivery charges on the exchange platform should be brought down to promote the deliveries. The specification of basis variety should also match with the market trends.

9.6 Most of the critical views were on the functioning of the market and not on its role. It was made out that if it does not benefit the farmers it has no role to play

without stating how and in what manner it harms the interests of the farmers. Various interest groups/trade associations perceived these markets as a threat to them.

9.7 There were those who strongly supported the market. It was expressed that futures trading can't alter the demand – supply situation of a commodity, rather it only gives early signals of the expected price scenario. The futures trading has not contributed to the price rise in commodities traded in the futures market. Futures markets will help in bringing transparency in the market so that all concerned parties, including the policy makers can act well in time on the basis of early signals emanating in these markets. The strict regulatory measures like margins, position limits and daily price band would ensure the integrity in the futures market.

9.8 One of the benefits of futures market is that it discovers the prices of commodity in advance thereby helping the farmers to take planting /sowing decisions. These signals are now available to the farmers at the futures platform. Presently, some of the farmers have benefited from the vibrant futures market though they do not participate directly. Farmers would benefit directly if commodity options trading is permitted. It was stated that commodity futures market are well organized which makes available a transparent price mechanism to the market participants. Futures trading provide window of opportunities for hedging physical stocks.

9.9 One common thread of the views that emerged from the consultations was that farmers are not yet able to take benefits of these markets for various reasons. In order that these markets have meaningful role, steps need to be taken to make them beneficial to farmers. The functioning of the markets has to be improved so as to make them more efficient. The lack of awareness and advocacy is also one reason for the negative perception about these markets.

### **Summary of Findings & Recommendations**

10.1 Futures' trading in commodities has a long tradition in India going back to 1875 when the Bombay Cotton Trade Association was set up. This was followed by a mushrooming of Exchanges throughout the country. (para 2.1)

10.2 The organized formal regulation of these markets started in Bombay State followed by a central legislation titled, Forward Contract (Regulation) Act, 1952 as the subject got included in the Union List of the VII Schedule of the Constitution of

India. But futures markets faced near oblivion since 1960s when they were accused of fuelling inflation and were perceived not to have any role as the State intervened directly in prices and distribution of large number of essential commodities which were perennially in short supply. The market survived in the periphery as very few commodities were permitted for futures trading (Para 2.2).

10.3 Adoption of liberal economic policies since 1991 gave fillip to efforts to open up futures trading, which culminated into total withdrawal of prohibition in 2003. Futures' trading has undergone a metamorphosis since 2003. New exchanges, modern technology, best international practices have been adopted. The volume of futures trade has grown exponentially (Para 2.3).

10.4 Agricultural commodities constituted a significant proportion of total value of trade till 2005-06. This place was taken over by Bullion and other Metals in 2006-07. Further, there has been a fall in agri-commodity volumes during 2007-08 over the previous year. Negative sentiments have been created by the decision to de-list futures trade in some important agricultural commodities. (Para 3.3).

10.5 The growth in commodity futures trade has spawned an upsurge in interest in a whole lot of associated fields, like research, education and training activities in commodity markets, commodity reporting for print and visual media, collateral management, commodity finance and ware-housing. The market and the related fields which were almost non-existent four years ago now attract significant mind-share nationally and internationally. (Para 3.4)

10.6 An analysis of high inflation in both WPI and CPI during 2006-07 shows that, although not the only source, agricultural commodities contributed disproportionately to this. Empirical analysis in respect of 21 agricultural commodities (accounting for about 98 % of share in total futures trade in agricultural commodities) shows that the annual trend growth rate of prices accelerated after introduction of futures trading in the case of many more of these commodities than there were cases of deceleration. In particular, prices of all food grains accelerated in the post-futures period. Since food grains have a high share in CPIs, particularly in CPI-AL that affects agricultural labourers, this acceleration does have considerable significance. (para 4.12)

10.7 The fact that agricultural price inflation accelerated during the post futures period does not, however, necessarily mean that this was caused by futures trading. One reason for the acceleration of price increase in the post futures period was that

the immediate pre-futures period had been one of relatively low agricultural prices, reflecting an international downturn in commodity prices. A part of the acceleration in the post futures period may be due to rebound/recovery of the past trend. (para 4.13)

10.8 A study of supply fundamentals (production, changes in inventory and international trade) show that changes in these also contributed to higher inflation during the period under consideration. Nonetheless, recent behaviour of food grains prices does not appear to be explained completely by supply shortfalls, and, in particular, contribution of international price movements to domestic price outcomes appears to have increased substantially. Claims that futures trading were a cause of the inflation in sensitive commodities needs to be viewed in this context. (para 4.35)

10.9 In contrast to the view that futures markets cause increases in prices, the bulk of the existing literature on the subject emphasizes that such markets help in price discovery, provide price risk management and also bring about spatial and temporal integration of markets. Futures markets have the potential to bring about better price stability over a medium to long term although the literature on futures markets itself is rather divided on the subject of price variability. The Indian data analysed in this report does not show any clear evidence that growth of futures markets has reduced commodity price volatility. (para 4.24, 4.28)

10.10 A study of the functioning of existing futures markets and contracts suggests that although the volume of futures trading in India has increased phenomenally in recent years, its ability to provide instruments of risk management has not grown correspondingly, and has in fact been quite poor. The reason for this is high basis risk in most contracts which keeps out potential hedgers and leads to greater dominance by speculators. This is a serious area which should be addressed both by exchanges and the Regulator, with particular attention to the possibility that speculation in the present open economy context may be driven by differences between domestic and international prices. (para 4.26)

10.11 The recent growth of futures trading has taken place in the backdrop of a long history of ban on forward trading when the perception about these markets was not good. These markets are bound to challenge status quo and adversely impact some interest groups. In the aftermath of delisting of some commodities for futures trading in the year 2007 the old debate about the utility of futures trading in agricultural commodities alongside the state intervention in prices and distribution of essential commodities has resurfaced. Both the literature on futures trading and empirical facts

analysed in this report suggest that there are inherent difficulties if futures markets are introduced for commodities where government actively attempts to influence prices and is also a large player in physical trade.

10.12 In order to avoid disruptive 'go-stop' responses that neither serves the public purpose nor growth of markets, it is necessary to take a clear position regarding essential commodities, particularly food grains, where government currently has a large and all embracing involvement in physical trade. Before the government takes any decision to revive futures trading in four recently delisted commodities, there should be a clear statement of its future intentions regarding maintaining the current system of public procurement and PDS. Till then the focus, as far as futures trading are concerned, should be on creating conditions for its orderly growth in other segments of the market for agricultural commodities. It should be noted that food grains have at no point contributed to more than 6 per cent of total volume of futures trading in agricultural commodities. Also, the scope for enlarging futures trading is huge since, despite high recent growth, the existing volume of futures trading for most agricultural commodities is still relatively low compared to international norms on the ratio of volume of futures trading to production.

10.13 The physical spot markets have large number of infirmities. Till these infirmities are removed, it will be difficult for the futures market to progress far ahead of them. Futures markets can act as a catalyst of change for spot markets and nothing more. Whenever futures markets try to grow faster than the under developed physical spot markets of underlying commodities, disconnect between the two gets widened thereby exposing the futures market to the criticism of being driven by speculators, even if closely regulated. (Para 5.6)

10.14 Reforming spot markets should be given top priority. There is a need to give thrust to encourage all state governments to pass Model APMC Act. In fact, the model APMC Act is going to revolutionize agriculture marketing in the country. Further, in order to promote integrated national markets, the Central Government should take active steps to bring inter-state spot trade under the regulation of a central authority rather than leave it to highly scattered APMCs. Entry 33 in concurrent list of 7<sup>th</sup> Schedule of the Constitution seems to provide such a jurisdiction. The setting up of National Spot Electronic Exchanges by the National Commodity Exchanges is an attempt to create a national integrated market. (Para 5.10)

10.15 Another enabler of the market will be to upgrade the quality of regulation both by the FMC and by the Exchanges. An important element of this is to require exchanges to act as self regulatory organizations, capable of demonstrating fair play, objectivity and customer orientation. Attracting speculators, arbitrageurs and other investors is no doubt important but that should not be the primary criterion while designing contracts. Many misconceptions about the market will vanish if regulation is upgraded not only to protect markets against any manipulation or abuse but also to ensure that the contracts on offer really do serve the objective of risk management. (Para 5.9)

10.16 There should be a consultative group comprising persons with proven domain knowledge of commodity sector both in the FMC as well as in the exchanges. They should advise the FMC about need and rationale for futures trading in new commodities and on modifications of existing contract designs (Para 5.18)

10.17 At the apex level a Committee on Commodity Market akin to the HLCC in the Capital Market should be constituted with Member, Planning Commission in charge of Agriculture as Chairman. FMC Chairman should be the Convener of the Committee. Secretary (Agricultures), Secretary (CA), Secretary (Commerce), Chairman (CACP), Economist of repute and one representative each of farmers and cooperatives should be members of the Committee. The Committee should deliberate on policy issues concerning Development and Regulation of Commodity market and guide the FMC to take appropriate steps. (Para 5.19)

10.18 Farmers can use agri-futures markets to transfer their price risks. The structure of markets, contract designs and other requirements of trading on these markets should be simple and easy to enable farmers to participate in these markets. The contract designs should be tailored to meet the needs of the physical market. Despite these enabling facilities and provisions, the farmers are not yet patronizing these markets in sufficient numbers. However, in some commercial commodities and specific regions farmers trade futures such as spices and rubber farmers in Kerala State (Para6.3)

10.19 The farmer is less likely to participate directly as these markets are complex; they need to be tracked continuously to take benefit out of them; the support infrastructure of warehousing and commodity finance is inadequate. Moreover, at the early stage of development of these markets, where liquidity in many commodities is

low, they are prone to high impact costs. The awareness and knowledge of accessing these market among farmers is yet not adequate. FMC and exchanges are making efforts to spread awareness and knowledge of these markets among farmers and also to make these markets safe for trading by them. These efforts need further upscaling. (Para 6.4)

10.20 Futures prices indicate democratically observed price expectations at future date. These prices - efficiently determined, disseminated and accessible to all concerned - can pave the way for optimal decision making and resource allocations. If farmer gets advance information about the price of the produce that is likely to prevail at the time of harvest he can plan his crop and investment accordingly. Also, as the harvest time approaches the prices likely to prevail much after harvest can guide him to take decision to sell or hold back his produce at the time of harvest. Thus, given his capacity and availability of other enabling infrastructure such as warehousing, finance etc. he will be able to exercise his marketing option in such a way as to maximize his income realization. (Para 6.9)

10.21 In order to ensure that benefit of price discovery on Exchange platforms reach them it is of prime importance to create structure which enables dissemination of prices to the remotest corners of the country. The technological revolution in print and audiovisual media has made it possible to attain such a reach. The efforts made by the FMC and commexes for dissemination of futures prices through various channels, though laudable, are small and inadequate considering the vastness and magnitude of the task.(Para 6.10)

10.22 Availability and access to information, though necessary, is not sufficient for farmers to benefit from this. Farmers need to be empowered to use this information. Empowerment is a much more difficult task than making information available. Farmers need to have holding capacity to sell produce at the best available prices. Banks' participation in commodity markets is quite critical. Their presence is required not only to extend finance against WRs but also to enable small and marginal farmers to access the commodity market. Without the availability of such support infrastructure the full benefit of risk transfer and price information will not accrue to farmers. Banks and Financial Institutions should be allowed to trade in commodity futures so that they can devise customized OTC products suited to the needs of small and marginal farmers. (Para 6.11)

10.23 National Exchanges are launching a pilot scheme of Aggregators' who will collect retail produce of the farmers and hedge it on the platform of exchanges on behalf of the farmers. The Co-operative institutions, RRBs, CCBs, NGOs, State Agricultural Marketing Boards, Warehousing Corporations, Commodity Development Boards which work in the rural areas and thus have close association and trust of farmers should be allowed and encouraged to act as aggregators. The rules and procedures of futures trade in Exchanges should be changed so as to enable these entities to access the markets. (Para 6.12)

10.24. 'Options in goods' are hedge instrument suitable for farmers needs. However, complex options products may be difficult to comprehend and not suitable for farmers' needs. In case of Agri-commodities **simple 'options' only** may be allowed for some time till market attains maturity of operations and regulations and farmers attain adequate understanding of the markets and of technique to use them. This will require an amendment to the FMC Act. Also, since the premium on options may be high, farmers costs of accessing these markets should be minimized by waiving transaction charges/taxes or even by granting subsidies out of tax collection/transaction charge collection for genuine hedge purposes by the farmers. A fool proof scheme of assistance should be devised for the purpose. (Para 6.15).

10.25. Before reopening futures trading in the major food grains, an assessment should be made of the possibility of FCI acting as the writer of 'call' and 'put' options in these commodities. This could reduce the cost of operations and incentivise market operations. The operation of MSP is like a zero premium option and options and MSP need not conflict. Whereas open-ended purchase could continue to be made at MSP as floor price, exchanges should be able to offer at a premium options for prices higher than MSP. Farmers should be encouraged to participate in these put options for which FCI can be the options writer.

10.26 There is a need to have a strong and resilient agriculture sector attracting investment for raising production and productivity. For this it is necessary to make agriculture a remunerative option. The vibrant agriculture markets including derivatives markets are the frontline institutions to provide early sign of future prospect of the sector. Vibrancy in these markets give signal about commodities which deserves flow of investment. These markets deserve to be promoted for giving such signal (Para 9.3)

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**STATEMENT**

**Period of Initial Liquidity in Selected Commodities**

Sl. No	Commodity	Date of Notification	Date of Permission	Date of Trade Commencement	Period of initial liquidity
1	2	3	4	5	6
1	Cardamom	01.04.2003	10.02.2004 (NMCE)	11.02.2004 (NMCE)	Nov-04 (NMCE)
2	Castor seed	16.04.1985			Nov-03 (NMCE)
3	Chillies	01.04.2003	30.08.2004 (MCX)	28.08.2004 (MCX)	Mar-05 (NCDEX)
4	Chana / Gram	01.04.2003	08.04.2004 (NCDEX)	12.04.2004 (NCDEX)	May -04 (NCDEX)
5	Guar seed	01.04.2003	22.05.2003 (NMCE)	28.05.2003 (NMCE)	May-04 (NCDEX)
6	Guar gum	01.04.2003	22.5.2003 (NMCE)	28.5.2003 (NMCE)	July-04 (NCDEX)
7	Gur	10.08.1970			Jan-05 (NCDEX)
8	Jeera	<b>Free</b>			Feb-05 (NCDEX)
9	Kapas	08.07.1964			Nov-05 (NCDEX)
10	Maize	01.04.2003	30.08.2004 (MCX)	28.09.2004 (MCX)	Jan-05 (NCDEX)
11	Mentha oil	<b>Free</b>		26.04.2005 (MCX)	May-05 (MCX)
12	Pepper	11.01.1957			Dec-03 (NMCE)
13	Potato	15.05.1985			Mar-05 (MCX)
14	Rapeseed / Mustard seed	12.04.1999	29.11.1999 (NBOT)	19.08.2000 (NBOT)	Mar-04 (NMCE)
15	Raw Jute	01.04.2003	24.05.2004 (NMCE)	04.06.2004 (NMCE)	Jun-04 (NMCE)
16	Rice	01.04.2003	30.09.2003 (NMCE)	13.12.2003 (NMCE)	Mar-05 (NCDEX)
17	Rubber	24.03.2005	20.02.2003 (NMCE)	15.03.2003 (NMCE)	Aug-03 (NMCE)
18	Soy Oil	01.03.2001	28.01.2003 (NMCE)	06.02.2003 (NMCE)	Mar-04 (NCDEX)
19	Soy bean	01.03.2001	28.01.2003 (NMCE)	06.02.2003 (NMCE)	Sept-04 (NCDEX)
20	Sugar-M	14.05.2001	28.01.2003 (NMCE)	06.02.2003 (NMCE)	Aug-04 (NCDEX)
21	Tur (Arhar)	01.04.2003	05.02.2004 (NMCE)	11.02.2004 (NMCE)	Apr-05 (NCDEX)
22	Turmeric	11.04.1956			Sept-04 (NCDEX)
23	Urad	01.04.2003	05.02.2004 (NMCE)	11.02.2004 (NMCE)	Aug-04 (NCDEX)
24	Wheat	01.04.2003	30.09.2003 (NMCE)	13.12.2003 (NMCE)	Aug-04 (NCDEX)

NB: 1. Names in parenthesis are those of the Exchanges.

2. Blank spaces indicate that these were permitted commodities even before the large scale liberalisation in 2003, but liquidity in them came only w.e.f. the month ( and in the Exchange) as indicated in Col.6.