

# Commodity and Derivatives Market for Agricultural Development

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## ABSTRACT

*India is an agrarian economy. Leading the economy to the desired state of progress depends heavily on utilising our core strength in agriculture to meet the competitive world challenges. Commodity market has crucial implications and affects agricultural productivity, food security and the socio-economic development of the country. The derivative market platform can stimulate a two way process where the market creates demand and vice versa in a global context. The present study explores the link of the production capacity of India with the structure of the Indian commodity market and share of agriculture in the exchange-based commodity market. An in-depth analysis of the Indian agricultural market is undertaken from the world perspective, considering the Global Food Security Index and Network Readiness Index. The study examines the environmental changes and regulatory reform for integration of the rural and urban commodity market, recommends innovative steps in commodity exchanges with an accountable and transparent trade, and proposes the steps to strengthen the rural participation in the light of available inventory and warehousing. A prerequisite to participatory and transparent regulatory mechanism, that acts with a pro-active, focused, flexible and dynamic approach, is to manage the risks of failure and adopt policies by concord in the complexities of the market, and involve*

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*market participants in decision making. Nurturing vigorously the market automatically enforces cultivation of demand and prosperity of the participants. It is a trajectory thought process against a half-hearted and pessimistic approach to revamp a meandered economy. Promoting inclusive growth, sustaining food security and boosting rural incomes in the country is intrinsically linked to a growth in the agriculture sector which can be leveraged by an efficient commodity market.*

**Keywords:** Commodity Derivative Market, Commodity Exchanges, Regulating Authorities, Agricultural Development

## **Introduction**

Agriculture provides life to everyone in the form of food and fiber. It provides earning and income to producers, processors, intermediaries, exporters, industries and government by one way or the other. Agriculture is, in fact, the heart of our economy. The commodity market is linking our agriculture with demand. A thousand years old existence of commodity future and market operation as explained by 'Kautilya' is one of the oldest commodity markets of the world (Kevin 2010). India is among the top 10 producers in the world for rice, buffalo milk, wheat, cow milk, fresh vegetables, sugarcane, potatoes, groundnut, peppermint and buffalo meat (Nageshwara and Rao, 2009). The liberalisation has given a way to challenge the world through the core strength of Indian agrarian economy. The Indian commodity market has witnessed regulation and de-regulation since inception. Even after a number of committees and the respective recommendations the commodity market is struggling to get a practical liberalisation. The UNCTAD and the World Bank's joint Mission Report 'India: Managing Price Risk in India's Liberalise Agriculture: Can Futures Market Help?' (1996) highlighted the role of future 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. 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) emphasised the need

for and role of future trading in price risk management and in marketing of agricultural produce.

### **Problem Statement**

Leveraging the agriculture sector by efficient commodity markets is a real challenge before us. The existence of a well structured, widely dispersed (commodity, as well as region wise), integrated, transparent, participatory and properly regulated commodity and derivative markets is inevitable. The present state, structure, functioning and regulatory system are all indicating deficiencies and call for smart, speedy and pragmatic adjustments at the regulatory, as well as operational levels of commodity markets. In spite of the huge potential capacity in the quality production of many agricultural commodities, the country is ranked at the bottom low in terms of the Global Food Security Index (GFSI). In fact, the missing market linkage in our agriculture is the matter of concern for us, and the smooth functioning of the commodity markets offer a solution to this problem. But our commodity markets as on now are not ready to shoulder this responsibility. A reform is needed in them. The whole scenario, present status, shortcomings and the desired adjustments as desired in the commodity market are indicated area-wise in the following paragraphs.

### **The Scenario**

The story of the Indian agricultural commodity market is totally different and deviated from the global standards. India is among the world's five largest producers of meat and livestock with one of the fastest growth rate. India was ranked among the world's largest producers of most of the agricultural items including some cash crops such as tobacco, coffee and cotton in 2012 (Singh et al., 2013). The challenges of irrigation, roads, storage, cultivation land, poor electricity, finance and transportation, etc., are culminating poverty, suicide and urbanisation among the agriculture population. The solution lies in developing agriculture to generate value for the global population, and linking it with the markets. The commodity exchange of India, which ranks among the top 10 in the global commodity bourses has the capacity to do it.

Figure 1 represents proportionate weight of India’s production of the world production of 15 top commodities moving proportionately. The trend shows the consistency in the Indian agricultural production year-on-year in line with world commodity production.

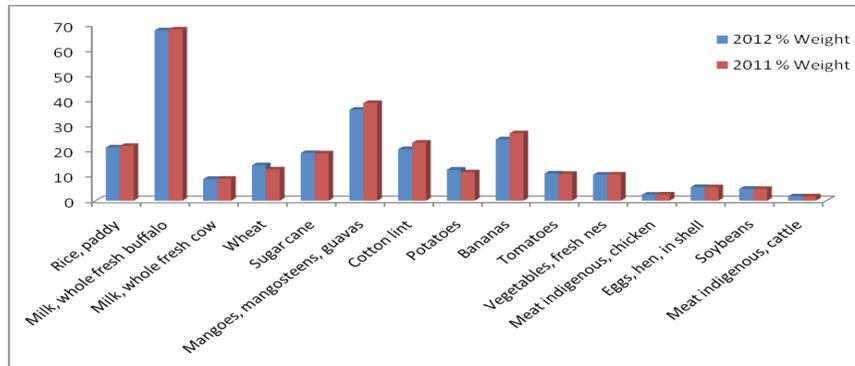
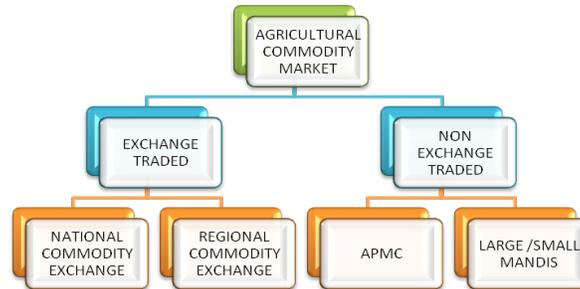


Figure 1: India’s Weightage of World Commodity Production\_

### Structure and Regulation

The agricultural commodity market is divided into exchange traded and non-exchange traded types (Figure 2). The Indian agricultural commodity market has a widespread network across 28000 small and large *mandis* of which 7,557 are regulated under the respective state APMC Acts (*The Hindu*, Business Line, 27 October 2013).

The commodity market is regulated by Forward Market Commission (FMC) under the Department of Economic Affairs, Ministry of Finance. There are Forward Contracts (Regulation) Act, 1952 and Forward Contracts (Regulation) Rules, 1954 empowering the FMC. The non-exchange traded commodity market is regulated through state level Agriculture Produce Marketing Committees (APMC) Act, Department of Agriculture and Cooperation, Ministry of Agriculture. Apart from the APMC Act, activities of market functionaries are regulated by several other legal instruments promulgated by the Central government and the States. These laws and orders cover different aspects or commodities in the country or a certain state.



**Figure 2:** Structure of Indian Commodity Market

### Present Status of Derivative Market

There are six national and eleven regional exchanges in India participating in commodity trade (FMC, 2014). There are 113 commodities notified for trade under Section 15 of the Forward Contracts (Regulation) Act [FC (R) Act] 1952. The numbers of traded commodities are 45 in all the exchanges during 2013–14. The total number of agricultural commodities in the approved list is approximately 90 which includes food grains and pulses, oil seeds and oil, spices, fibers and manufactures, and other commodities. There were not more than 34 agricultural commodities traded on the exchange platform during 2013–14. The total traded value of these agricultural commodities is less than 15 per cent of the total commodity traded during 2013–14 even after a huge decline in commodity volume. The actual contribution of agricultural commodities' trade was just 11 per cent last year. The average daily traded value of agricultural commodities is less than Rs. 5,000 crore as against Rs. 29,000 crore for non-agricultural commodities.

**Table 1:** Comparison of Agricultural Commodities if Agricultural Commodities VS All Commodities

<i>Trade Summary</i>	<i>Value in Rs. Crores</i>		
	<i>2013–14</i>	<i>2012–13</i>	<i>% Change</i>
<i>1st Jan to 31st Jan</i>			
Total value of trade in agri commodities	1,51,989	1,63,308.9	-6.93159
Cumulative value of trade in agri commodities	25,32,006	36,71,257	-31.0316
Total value of all commodities trade	6,56,301.8	14,55,131	-54.8974
Cumulative value of all commodities trade	1,74,32,027	2,80,69,569	-37.8971

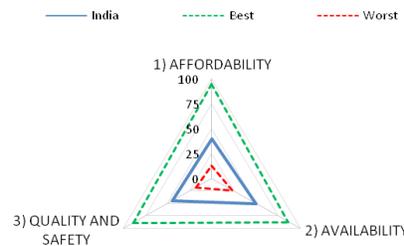
*Source:* Website of respective exchanges.

## World Commodity Market Benchmark

In the global perspective, commodity market is utilised in a broader range to stimulate trade practices of the commodity sector. It has been serving the purposes of market creation, market access, stimulating regional integration, facilitating the provision of finance, price discovery, price transparency, price risk management, reducing counterparty risk, infrastructure enhancement, quality assurance or upgrading, and uplifting export driven commodity economy. This may be through the use of instruments other than futures, options, swaps, spot or cash trade for immediate delivery, forward contracts on warehouse receipts, the trade of farmers repurchase agreements, or 'repos'. Alternatively, the focus is to evolve a system and process on facilitation activities rather than just providing a trading environment. We need to mention here two of the impact factor Indexes which show India's global capacity or ranking in addressing the domestic commodity market challenges, namely:

### *Global Food Security Index*

India stands seventieth in the ranking of 107 countries' indexes (Figure 3). The three dimensional analysis reflects shrinkage and inefficiency in the infrastructural investment, supply chain, quality food and per head production capacity of the country. There are eighteen variables under three categories suggesting India in the bottom ranking category in the Global Agricultural Food as mentioned in the pyramid (*The Economist*, 2013). 68 per cent of more than 120 crore people living on less than \$2 a day are below poverty line (GFSI, 2013; Venu and Rukmini, 2013).



**Figure 3:** India's Position in GFSI

Moreover about half of the country's populations are from the smallholder farming community, who need a favourable market to survive the resource

constrained agricultural sector. The emphasis is on building a sustainable structure to garner the deprived part of rural India.

### *Network Readiness Index*

The revolutionary liberalised economy pioneered the digitalised market structure as an emboldened move to carve the agrarian economy into the global standard. The NRI aims to measure the ability of countries to leverage information and communication technologies (ICTs) for improved competitiveness and wellbeing (Osorio et al., 2013). NRI studies 54 individual variables based on the 10 pillars' index emphasising the environment as a key driver for its impact on the countries' economy and society. The improvement in the environment is based on the political and regulatory changes along with a business and innovation roadmap. India stands critical on the NRI Index in comparison to the rest of the world. The scores are measured on a scale of 1–7 from best to worst performing economies and appearing from dark green to red, respectively in Figure 4. On the accumulation of these scores India is under orange color on the map in the graph below with 3.88 scores. The economies with less than 3.3 score are treated as worst economies with red color. The performance and rating of the commodity market can be judged by these global standards. A real time adjustment in the functioning may be brought to effect by an ICT (Information and Communication Technology) platform.

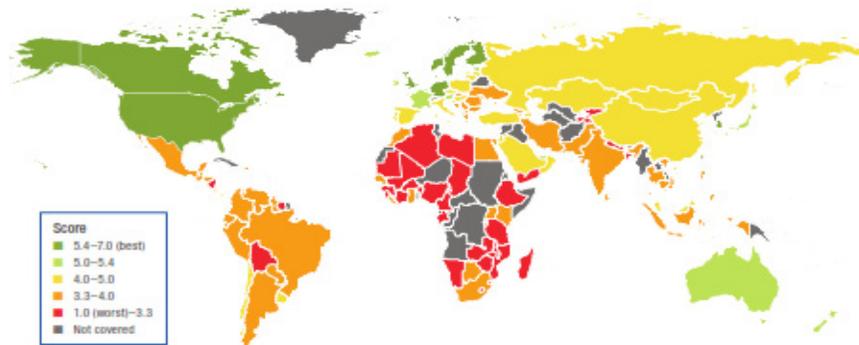


Figure 4: Global NRI Mapping with Scores

## **Use of ICT Platform: A Reform Driver**

Information and Communication Technologies (ICTs) have a demonstrably positive effect on income growth in countries (Roller and Waverman, 2001; Waverman, Meschi and Fuss, 2005). In rural areas, ICT can raise incomes by increasing agricultural productivity (Lio and Liu 2006). Current limited evidence from individual farmers and fishermen in India supports the conclusion that ICTs improve incomes and quality of life among the rural poor (Goyal, 2010; Jensen, 2007). ICT delivers a smart, speedy, skilful, scalable and structured commodity and derivative market to build a road map for a developed India which could be globally acknowledged. The application of ICT platform for expansion of market, ensuring presence in the remote areas, and improving productivity will positively impact the quality of life and income among the agricultural participants. Despite the scarcity of evidence to support this notion (Forestier, Grace and Kenny, 2002), there is need of a broad policy initiative to ensure the acceptability of ICT in all areas of agricultural economy. Promoting inclusive growth, sustaining food security, and boosting rural incomes in the country is intrinsically linked to a growth in the agriculture sector which can be leveraged by an efficient commodity market.

The Global Information Technology report analyses the driver and impact of ICT on the economy, allowing the countries to measure their technology. The NRI report measures the ICT infrastructure, the cost of access in these infrastructures, and the presence of necessary skills to ensure its optimal use. The uptake and use of ICT at the government, business and individual levels, the business innovation environment, regulatory framework, and finally the economic and social viability are the factors to make this happen.

## **Analysis and Strategies**

The analysis reveals the scope of policy adjustments and reform guided by the global standards and expectations. India has undoubtedly a potential to lead the world in agriculture by 2050. The focus on the gray areas in the efficient functioning of supply chain and commodity markets is a pre-requisite to a prosperous and dominant agrarian economy. But it needs a clear vision in the domestic scenario and pitfalls, and ways

to overcome them. The study finds a dearth of such measures and recommends measures to resolve the crises. In specific terms we need to target the following:

- The integration of the capacity of production or linking the farm based production with the digitalised market.
- The supply chain efficiency should lead to reduce wastages of commodity to increase the remuneration to the producer, as well as trader.
- Having Virtual Integrated Commodity market inclination towards the producer-centric products to attract need based participation. It will overcome the problems of inbuilt shriveling commodity exchanges and weak participation, and strengthen them for achieving the actual sense of global standards.
- To organise rural markets and provide a well-connected uniform trading platform that encourages a healthy competitive environment among producer community.
- The articulation of the agricultural service sector to nurture entrepreneurship and innovative business structure.

A resourceful commodity market will lead to strengthening of the environment, and create a prosperous economy and society. The achievement of global competitive commodity market needs process based involvement of the participating stakeholders. The micro and macro factors indicate that the active resolution is much needed to provide oxygen to the Indian commodity and derivative market. The analysis recommends the creation of a congenial environment to inculcate an inclusive growth orientation in the commodity market of global standard. The achievement depends on a socially and economically healthy commodity market mechanism. The political and regulatory practices are the means to provide such a system. The targeted regulatory reforms can only change the rule of the game and the face of agriculture in the country.

## **Conclusion**

The amelioration of national commodity market demands an orientation and objective driven global perspective. The results may be witnessed

only by the empowerment and capacity building of the Commodity and Derivative Market Authority. The shrinkage in volume and less attractive state for the participant needs an urgent and thorough investigation. The market regulating authority is presently under the ambit of the Ministry of Finance. The huge commodity market which is not on the technology interface operationally works under the Ministry of Agriculture. The loss of direction is reflected by this also. The facilitation of a transparent, fast, proactive, equipped and scalable market is a concern for the whole nation. The three directional regulatory reforms are postulated as given below:

- *Structural Reform:* It emphasises decollectivisation of agriculture and market, integration of future and spot market on a single window, compulsory digital transactions, empowerment of entrepreneurs, one regulation for all *mandi*/APMC and boards.
- *Process Reform:* ICT based yard/*mandi*, as well as settlement and clearance, market driven facilitation and assistance to cover physical delivery of commodities, consolidate multi-legal Instrumentc or acts under one act, rational goods and service tax.
- *Behavioural Reform:* Opening up of Foreign Investment, ICT based monitoring linked with trading work station of *mandi*/ APMC/ trader/ broker, participatory and responsive way of handling.

In a nutshell, we can conclude that the current role of FMC is insufficient to cover the dynamism of an agrarian economy in the new liberalised world. The authoritative and participation style, substance, and support in the modern ICT driven world need some vital readjustments and revision in approach.

## References

- Faostat (2014), Food and Agriculture Organisation of the United Nations. Retrieved from <http://faostat.fao.org/site/339/default.aspx>
- FMC (2014), Forward Market Commission, Mumbai. Highlight and Important Developments for the Fortnight from 1.1.2014 to 15.1.2014. Retrieved from Forward Market Commission, website [http://www.fmc.gov.in/show\\_file.aspx?linkid=1\\_1\\_14 % 20to%2015\\_ 1\\_ 14-168917509.pdf](http://www.fmc.gov.in/show_file.aspx?linkid=1_1_14%20to%2015_1_14-168917509.pdf)
- Forestier, E., J. Grace and C. Kenny, 'Can Information and Communication Technologies Be Pro-Poor?', *Telecommunications Policy*, vol. 26, no. 11, 2002, pp. 623–46.

- GOI (2012), Agricultural Census Division, Department of Agriculture & Cooperation 2010–2011. Retrieved from Agriculture Census Division Government of India, website <http://agcensus.nic.in/document/agcensus2010/agcen2010rep.htm>
- Goyal, A., 'Information, Direct Access to Farmers, and Rural Market Performance in Central India', *American Economic Journal: Applied Economics*, vol. 2, no. 3, 2010, pp. 22–45.
- Jensen, R., 'The Digital Divide: Information (Technology), Market Performance, and Welfare in the South Indian Fisheries Sector', *Quarterly Journal of Economics*, vol. 122, no. 3, 2007, pp. 879–924.
- Kevin, S., *Commodity and Financial Derivatives*, 2010. Retrieved from [books.google.co.in/books?isbn=8120341627](http://books.google.co.in/books?isbn=8120341627)
- Lio, M. and Meng-Chun, L., 'ICT and Agricultural Productivity: Evidence from Cross-country Data', *Agricultural Economics*, vol. 34, no. 3, 2006, pp. 221–28.
- Nageshwara, M.R. and S.S. Rao, 'Direction of Trade in Indian Agricultural Commodity Exports', *Southern Economist*, vol. 47, no. 19, 2009, pp. 23–28.
- Osorio, B.B. et al., 'The Network Readiness Index 2013: Benchmarking ICT Uptake and Support for Growth and Jobs in a Hyperconnected World', *World Economic Forum*, 2013.
- Patnaik, G. (2011), *Policy Option and Investment Priorities for Accelerating Agriculture Productivity and Development in India*. New Delhi: India International Centre. Retrieved from <http://www.igidr.ac.in/newspdf/srijit/PP-069-11b.pdf>
- Pennings, J.M.E., 'Research in Agricultural Futures Markets: Integrating the Finance and Marketing Approach', *German Journal of Agricultural Economics*, vol. 52, 2003, pp. 300–08.
- Roller, L.H., and L. Waverman, 'Telecommunications Infrastructure and Economic Development: A Simultaneous Approach', *The American Economic Review*, vol. 91, no. 4, 2001, pp. 909–23.
- Sahadevan, G.K., 'Derivatives and Price Risk Management: A Study of Agricultural Commodity Futures in India', *Economic and Political Weekly*, vol. XXXVII, no. 30, 2002, pp. 3153–60.
- Sendhil, R. et al., 'Profile and Growth of Agricultural Commodity Futures in India', *Socio Economic Voices*, 2013. Retrieved from Forward Market Commission [indiastat website http://www.indiastat.com/article/50/sendhil/full%20text.pdf](http://www.indiastat.com/article/50/sendhil/full%20text.pdf)
- Singh, S. et al., *Inefficiency in Agriculture Supply Chain in Punjab and Opportunities for IT Interventions*, Munjal Global Manufacturing Institute, Indian School of Business, 2012.
- GFSI (2013), *Global Food Security Index: An Annual Measure of the State of Food Security*, Sponsored by DUPONT, The Economist Intelligence Unit Ltd.
- Venu, K.M. and S. Rukmini, 'Beyond the Debate, Govt. accepts 65% Indians are poor', *The Hindu*, 24th June, 2013.

- Waverman, L., M. Meschi and M. Fuss, 'The Impact of Telecoms on Economic Growth in Developing Countries', *Vodafone Policy Paper*, Series (2), 2005, pp. 10–24.
- World Bank and UNCTAD, *India: Managing Price Risk in India's Liberalise Agriculture: Can Futures Market Help?* Allied Publishers, 1996. Retrieved from [http://www-wds.worldbank.org/servlet/WDSContentServer/IW3P/IB/1996/11/27/000009265\\_3970311113828/Rendered/PDF/multi\\_page.pdf](http://www-wds.worldbank.org/servlet/WDSContentServer/IW3P/IB/1996/11/27/000009265_3970311113828/Rendered/PDF/multi_page.pdf)